Appendix

GREAT STREETS BTV

City of Burlington
Downtown Street Design & Construction Standards

Appendix

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City of Burlington
Downtown Street Design & Construction Standards

Glossary & References

Key Terms

AASHTO: American Association of State Highway and Transportation Officials

ADA: Americans with Disabilities Act

ADAAG: Americans with Disabilities Act—Standards for Accessible Design

Bikeways: A path or lane for the use of bicycles that is typically in the Roadway Zone.

Complete Street: Street environments that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Users also benefit from enhancements to the street that increase safety and comfort, including traffic calming, enhanced bus stops, updated utilities and lighting, increased stormwater infrastructure, and improved tree belts.

Furnishings: Objects placed or fixed in the public right of way for public use, such as mailboxes, bike racks, and benches.

Green Belt: The area between the curb and the Clear Sidewalk Zone that is finished with turf and/or other plantings that support the growth of street trees, and does not function as a finished surface for walking and/or the placement of street furnishings.

MUTCD: Manual on Uniform Traffic Control Devices

NACTO: National Association of City Transportation Officials

Pedestrian Zone: The portion of a public right of way that is outside of the curbs that is considered to be the "sidewalk." The sidewalk is comprised of some or all of the following elements: Buffer Zone, Tree Belt/Furnishing Zone, Clear Sidewalk Zone, and/or Frontage Zone. The sidewalk does not include areas between the curb and the Clear Sidewalk Zone that is vegetated and functions as a Green Belt or is part of a Tree Well or Tree Pit.

PROWAG: Proposed Right-of-Way Accessibility Guidelines

Public Investment Action Plan (PIAP): 2013 action plan that solicited proposals for infrastructure improvements to the Burlington Waterfront from public and private entities.

Right of Way: In downtown Burlington, street right-of-way (ROW) is defined as the public space between private property lines.

Roadway Zone: The portion of a public right of way that is between the curbs, and typically includes travel & turn lanes, parking lanes, bikeways, crosswalks, etc.

Shared Street: A shared street is an approach that minimizes the segregation between modes of road user, usually by eliminating curbs, road markings, and traffic signs. The goal of shared space is to improve the road safety and vibrancy of roads and junctions, particularly ones with high levels of pedestrian traffic, by encouraging negotiation of priority in shared areas between different road users.

Street Classification:

- Class I Town Highways: those town highways which form the extension of a state highway route and which carry a State highway route number.
- Class II Town Highway: those town highways selected as the most important highways in each town.
- Class III Town Highway: all traveled town highways other than class 1 or 2 highways. The minimum standards for class 3 highways are a highway negotiable under normal conditions all seasons of the year by a standard manufactured pleasure car. This would include but not be limited to sufficient surface and base, adequate drainage, and sufficient width capable to provide winter maintenance; should be plowed and made negotiable during the winter.
- Class IV Town Highway: all town highways that are not class 1, 2, or 3 town highways or unidentified corridors.

Street Corridor: Refers to a particular street segment as a whole, including its urban makeup and character from a given start point to a given end point that could span for multiple blocks or multiple miles.

Tree Pit/Well/Grate: The area immediately surrounding the trunk of a tree which is planted with grass or other vegetation (tree well) or is protected by a tree grate and is necessary to support the growth of street trees. See page *"Tree Belt & Green Belt Typologies" on page 176*.

VTrans: Vermont Agency of Transportation

References & Resources

Users of this manual are encouraged to consult the following resources for additional information:

planBTV Downtown & Waterfront Master Plan—City of Burlington

planBTV Downtown Form Based Code—City of Burlington

planBTV Walk Bike Master Plan—City of Burlington

Urban Bikeway Design Guide—National Association of City Transportation Officials (NACTO)

Urban Street Design Guide—National Association of City Transportation Officials (NACTO)

Separated Bike Lane Planning and Design Guide—U.S. Department of Transportation/Federal Highway Administration

Separated Bike Lane Planning & Design Guide 2015—Massachusetts Department of Transportation

Vermont Pedestrian and Bicycle Facility Planning and Design Manual—Vermont Agency of Transportation

San Francisco Parklet Manual (2.2)—City of San Francisco/Pavement to Parks

Complete Streets: a Guide for Vermont Communities—Vermont Department of Health

Street Design Guidelines: Burlington Transportation Plan—City of Burlington

Downtown Parking and Transportation Management Plan—City of Burlington

Residential Parking Management Plan—City of Burlington

Quick Build Design Guide-- City of Burlington

Urban Forestry Master Plan, City of Burlington—Northern Vermont Resource Conservation and Development Council/Vermont Department of Forests, Parks and Recreation

Burlington Parks, Recreation & Waterfront Master Plan—Burlington Parks/Recreation/Waterfront

VTrans Standard Drawings

Vermont Roadside Historic Site Markers

Lake Champlain Wayside Exhibit Manual

Adoption & Amendments

These Standards are effective upon the following approvals and adoptions and subsequent amendments:

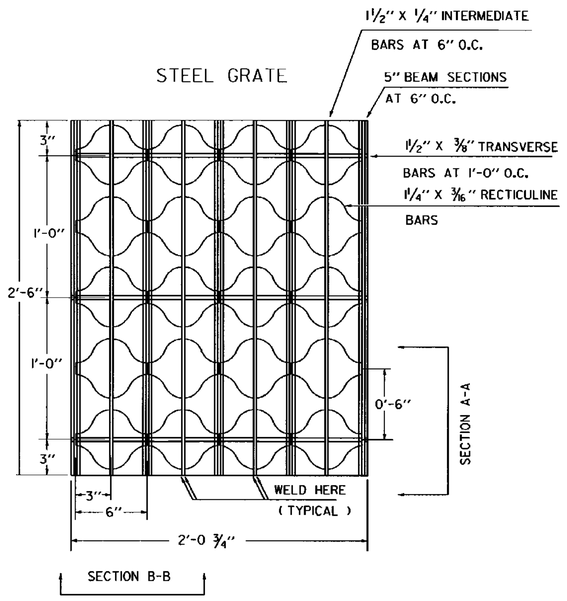
Approval by Burlington Parks, Recreation, & Waterfront Commission, December 5, 2017

Approval by Burlington Public Works Commission, December 20, 2017

Adoption by Burlington City Council Resolution, April 16, 2018

Roadway Zone Details

STEEL GRATE

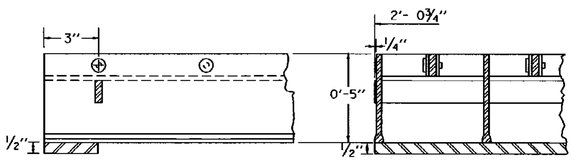


PLAN

GRATE SIZE SINGLE 24 ¾" X 30"
DOUBLE 24 ¾" X 54"

WEIGHT 95 LBS OR MORE
GRATES SHALL BE CAPABLE OF SUPPORTING H-20 (32,000 LB. AXLE LOAD) INCLUDING 30% IMPACT.

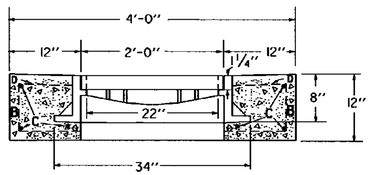
UNIT STRESSES (LBS PER SQ. IN.)		18,000	20,000
MAIN BAR PARALLEL TO TRAFFIC	H-20	49"	53"
MAIN BAR PERPENDICULAR TO TRAFFIC	H-20	39"	42"



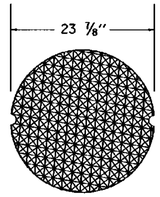
CAST IRON COVER WITH FRAME

BAR	NO.	LENGTH	
B	4		8" 3'-8" 8"
C	6	3'-8"	STRAIGHT
D	4	3'-8"	STRAIGHT

ALL REINFORCING STEEL TO BE No. 5 DEFORMED BARS



ELEVATION

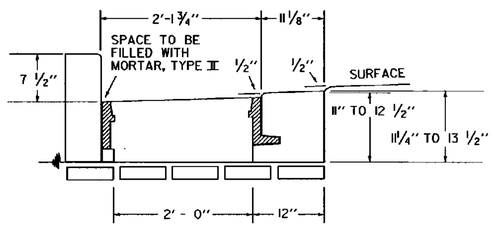


PLAN

GENERAL NOTES:

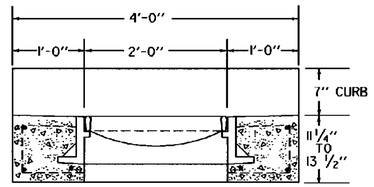
WEIGHT OF FRAME AND COVER = 425 LBS.

CAST IRON GRATE WITH FRAME



ELEVATION OF REINFORCED CONCRETE DROP INLET WITH VERTICAL GRANITE CURB AND 3 FLANGE CAST IRON FRAME FOR CAST IRON GRATE

SEE STANDARD D-9 FOR CONCRETE VOLUME, REINFORCING STEEL SCHEDULE, AND CURB JOINT DETAIL.

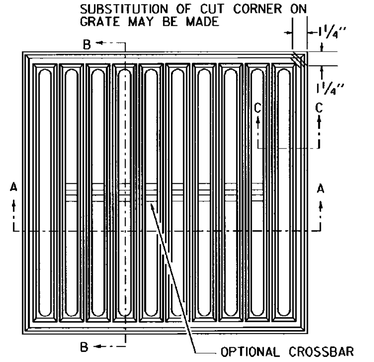


ELEVATION

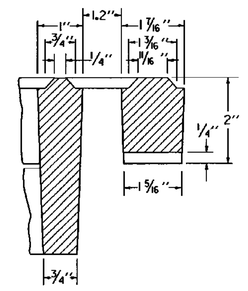
WEIGHT OF 3 FLANGED FRAME AND GRATE

GRATE	220 LBS
FRAME	260 LBS
TOTAL	480 LBS

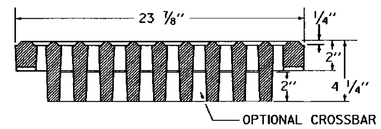
CAST IRON GRATE, TYPE A



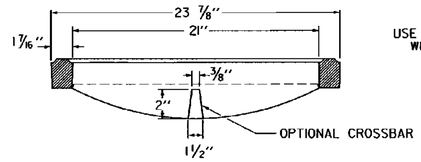
PLAN



SECTION C-C

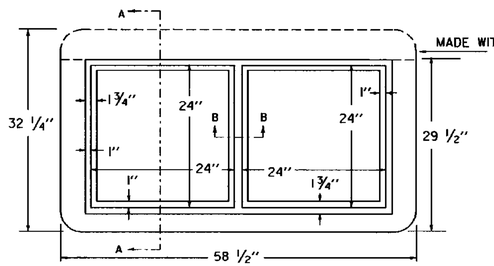


SECTION A-A

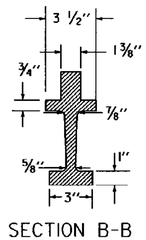


SECTION B-B

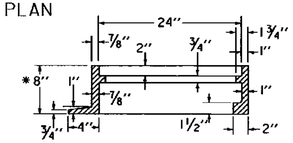
USE OF THE TYPE A GRATE IS PROHIBITED WHERE BICYCLE TRAFFIC IS EXPECTED



PLAN

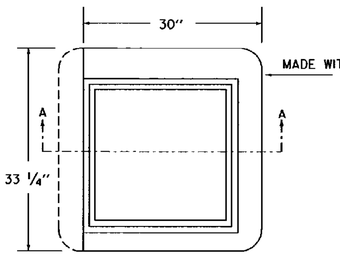


SECTION B-B

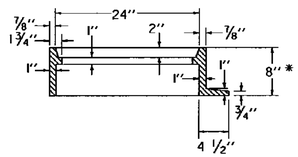


SECTION A-A

RECTANGULAR CAST IRON FRAME FOR TWO 24" SQUARE CAST IRON GRATES



PLAN



SECTION A-A

SQUARE CAST IRON FRAME FOR CAST IRON GRATE TYPE A

* NOTE: FRAME DEPTH TO BE "6" WHEN USED IN CONJUNCTION WITH DROP INLET DETAILED ON STANDARD D-6.

THIS FRAME TO BE PLACED IN DROP INLET TOP BEFORE CONCRETE IS POURED.

4 FLANGES UNLESS OTHERWISE INDICATED. FRAMES TO BE FURNISHED WITH 3 FLANGES WHEN USED IN CONJUNCTION WITH CURB OR AS DIRECTED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL
APR. 25, 1972 - CAST IRON COVER CHANGED FROM SQUARE TO CIRCULAR
SEPT. 4, 1980 - OPTIONAL CROSSBAR ADDED TO A GRATE: NOTE ADDED TO A GRATE FRAME DETAIL
AUG. 25, 1981 - NOTE ADDED RESTRICTING USE OF TYPE A GRATE
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

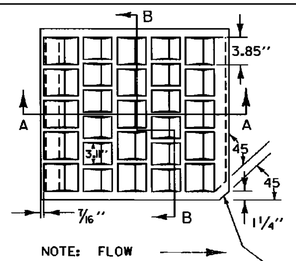
Gordon S. MacArthur, P.E.
DIRECTOR OF ENGINEERING

Robert M. Murphy, PE
DESIGN ENGINEER

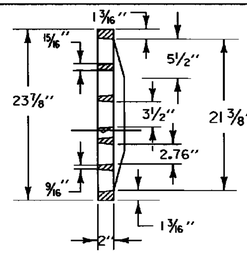
STEEL GRATE
CAST IRON GRATE TYPE A
CAST IRON COVER

VERMONT AGENCY OF TRANSPORTATION

STANDARD
D-11



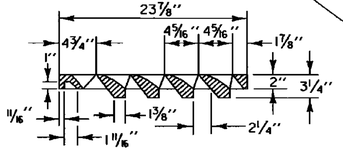
NOTE: FLOW →



SECTION B-B

NOTE: THIS CORNER LEFT OFF FOR "RIGHT" GRATE DIAGONALLY OPPOSITE CORNER FOR "LEFT" GRATE TO FIT IN KEYED FRAMES.

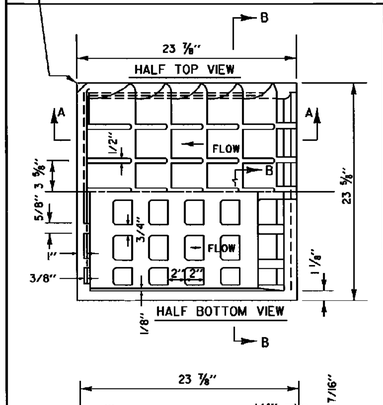
THIS CORNER LEFT OFF FOR "RIGHT" GRATE, DIAG. OPPOSITE CORNER FOR "LEFT" GRATE, TO FIT IN KEYED FRAMES.

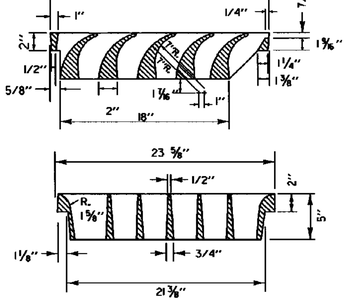


SECTION A-A

TYPE "E" GRATE
(NOT TO SCALE)

NOTE: ALTERNATE TYPE E GRATE BELOW





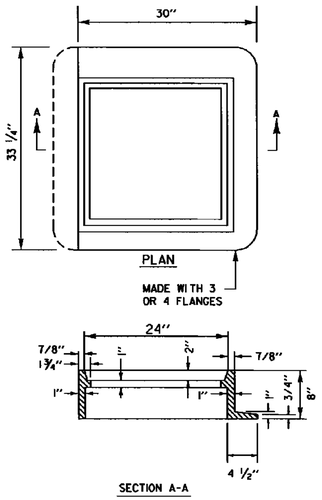
SECTION B-B

CAST IRON GRATE
TYPE E

NOTE: THIS FRAME TO BE PLACED IN DROP INLET TOP BEFORE CONCRETE IS POURED.

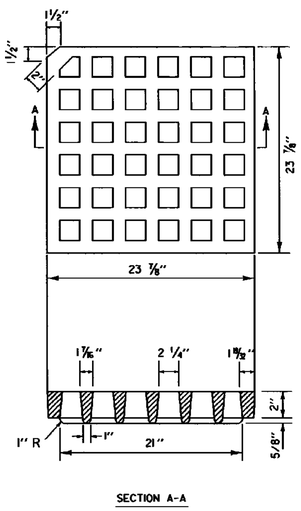
4 FLANGES UNLESS OTHERWISE INDICATED.

FRAMES TO BE FURNISHED WITH 3 FLANGES WHEH USED IN CONJUNCTION WITH CURB OR AS DIRECTED BY THE ENGINEER.



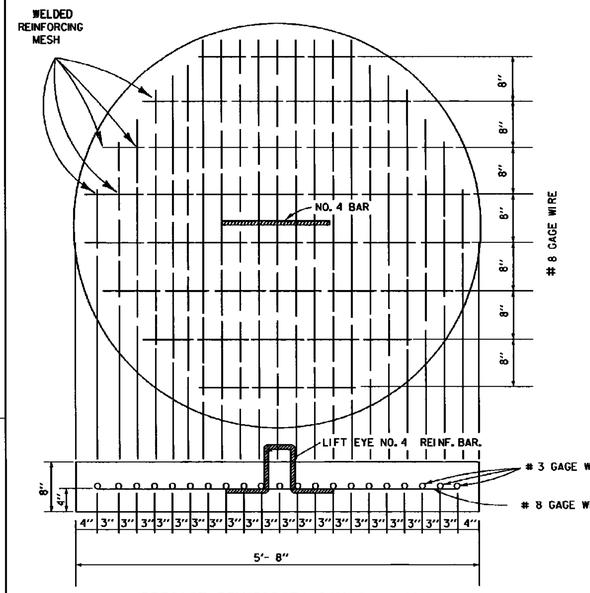
SECTION A-A

FRAME
FOR
TYPE D OR TYPE E
GRATE

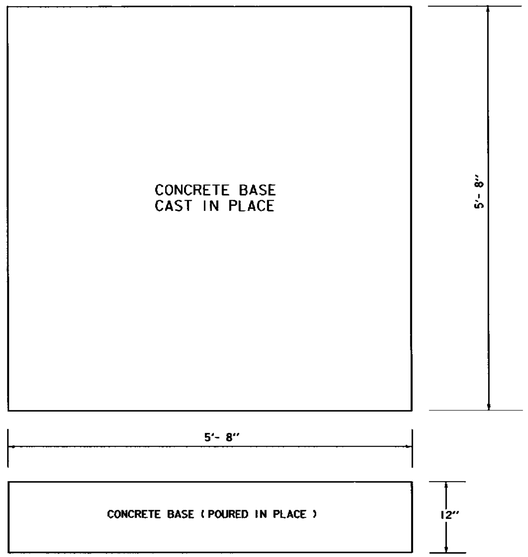


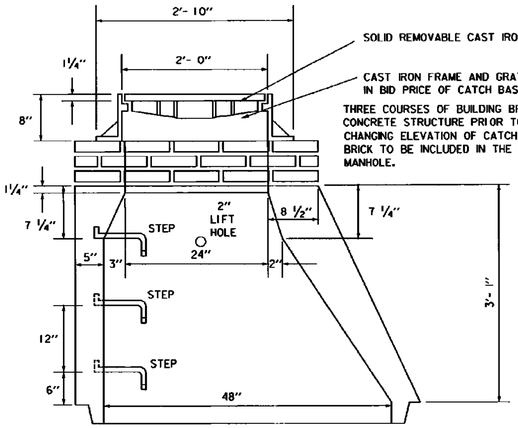
SECTION A-A

CAST IRON GRATE
TYPE D



PRECAST REINFORCED CONCRETE BASE

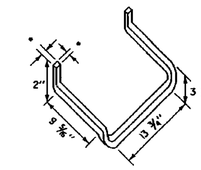




SOLID REMOVABLE CAST IRON COVER OR GRATE

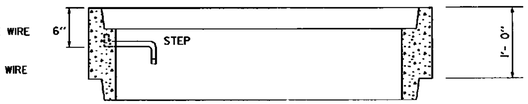
CAST IRON FRAME AND GRATE, OR COVER, TO BE INCLUDED IN BID PRICE OF CATCH BASIN OR MANHOLE.

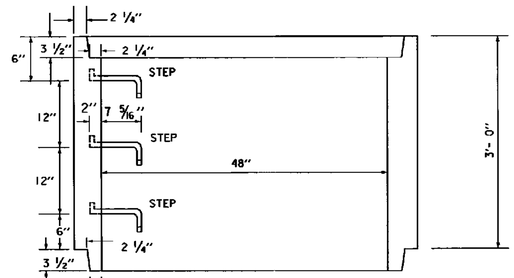
THREE COURSES OF BUILDING BRICK TO BE PLACED ON TOP OF CONCRETE STRUCTURE PRIOR TO PLACING FRAME TO FACILITATE CHANGING ELEVATION OF CATCH BASIN OR MANHOLE WHEN REQUIRED. BRICK TO BE INCLUDED IN THE BID PRICE FOR CATCH BASIN OR MANHOLE.

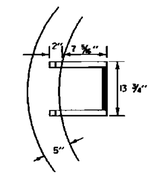


ALUMINUM STEP
(DROP FRONT)

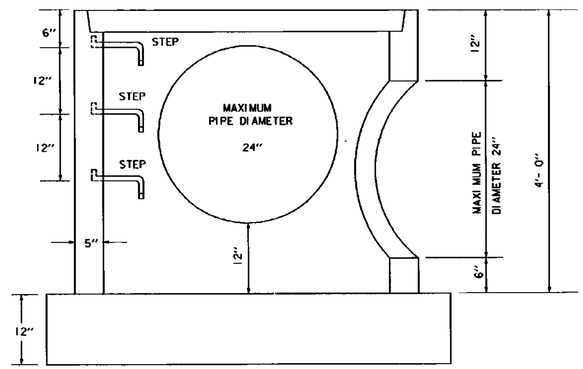
* - INDIVIDUAL METAL RUNGS SHALL HAVE A MINIMUM DIMENSION OF 1" OR SHALL BE PAINTED OR OTHERWISE TREATED TO RESIST CORROSION AND RUSTING.







STEP DETAIL
TOP VIEW



REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL
OCT. 22, 1976 - CAST IRON GRATE WITH FRAME, TYPE E ADDED
OCT. 6, 1978 - TYPE D GRATE ADDED
OCT. 30, 1985 - IMPERFECT TRENCH DETAILS DELETED
FEB. 17, 1993 - SECOND CAST IRON GRATE TYPE E ADDED.
MAR. 23, 1994 - ADDED NOTE FOR STEP DETAILS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

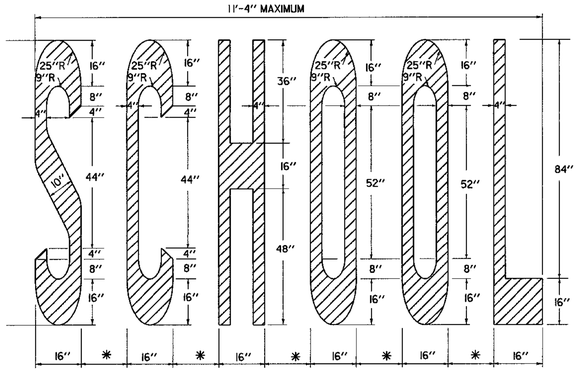
Robert M. Murphy
DESIGN ENGINEER

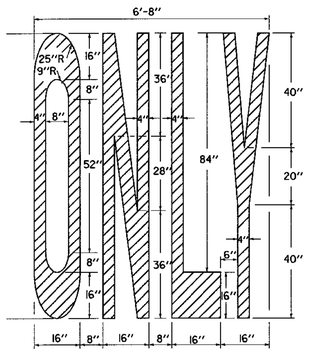
PRECAST REINFORCED CONCRETE CATCH BASIN W/ CAST IRON GRATE
PRECAST REINFORCED CONCRETE MANHOLE W/ CAST IRON COVER

CAST IRON GRATE WITH FRAME, TYPE D
CAST IRON GRATE WITH FRAME, TYPE E

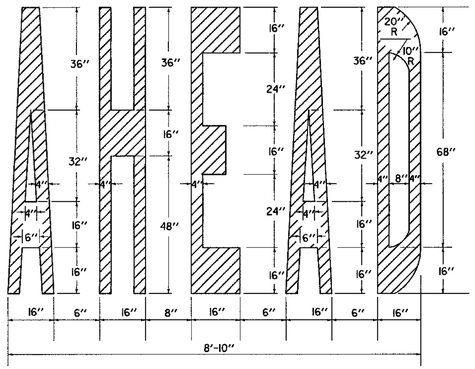
VERMONT AGENCY OF TRANSPORTATION

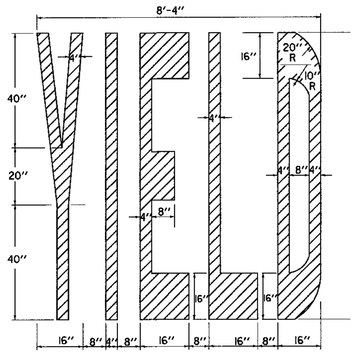
STANDARD D-15

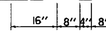




* (4''-8'') - ADJUST TO AVAILABLE PAVEMENT WIDTH



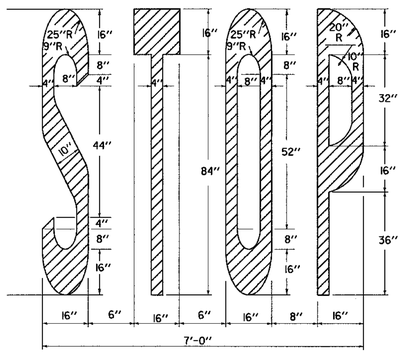


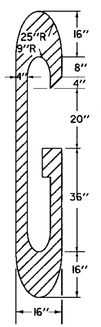


6" LETTER SPACING

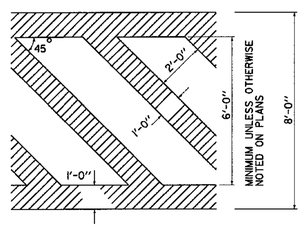
LETTER HEIGHT

DIMENSIONS ARE FOR 8' - 4" LETTER HEIGHTS. A LESSER HEIGHT OF 8' - 0" IS ACCEPTABLE AS LONG AS THE DIMENSIONS ARE PROPORTIONAL TO THE DETAILS SHOWN SEE NOTE BELOW.



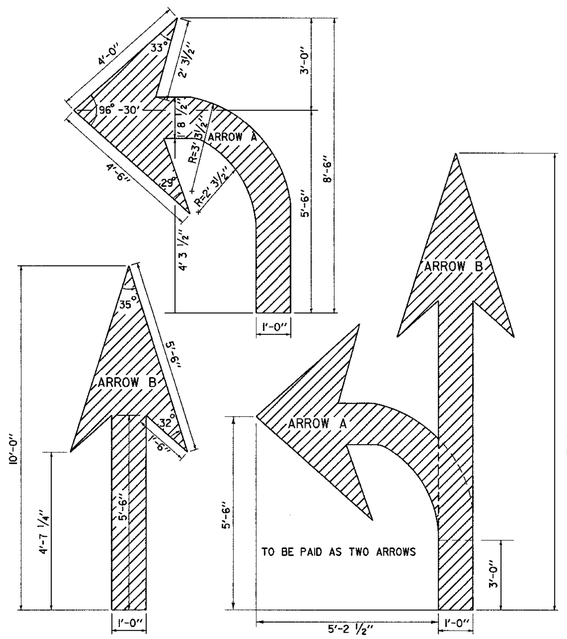


THE LETTER "G" PERTAINS TO THE WORD "SIGNAL" FOR OTHER LETTERS, SEE ABOVE.

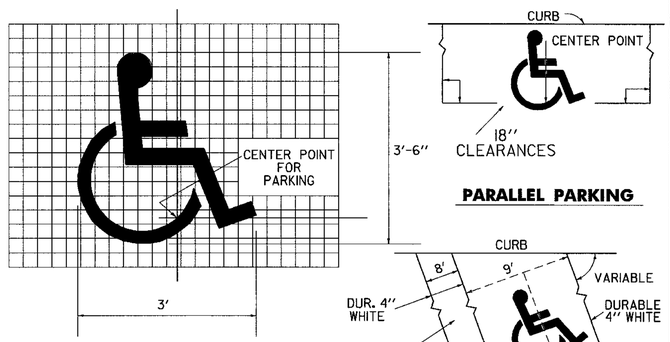


ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

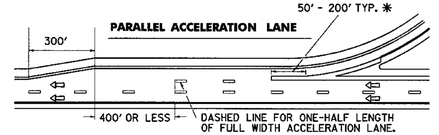
LETTER IN WORD MARKING AND CROSSWALK DETAILS



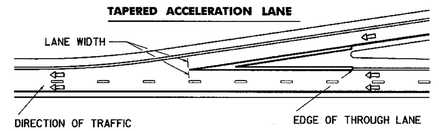
ARROW DETAILS

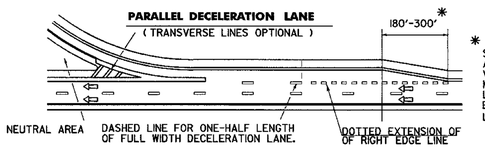


HANDICAPPED PAVEMENT MARKING DETAILS

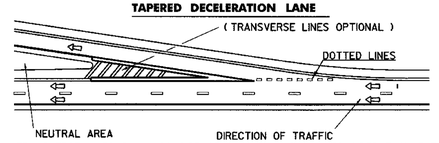


* USE LONGER LENGTH TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSUAL CARE SUCH AS HIGH VOLUME MERGE AREAS.





* SHORTER TAPERS GIVE A BETTER TARGET VALUE, HOWEVER ALIGNMENT MAY DICTATE A LONGER TAPER. RESIDENT ENGINEER SHALL ESTIMATE LENGTH.

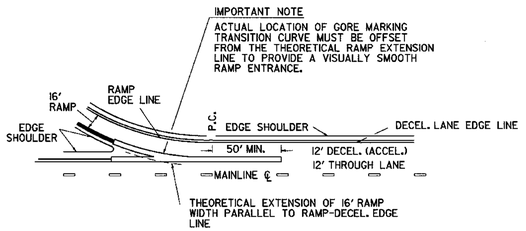


TRANSVERSE LINES SHALL CONSIST OF A WHITE LINE 2 TIMES WIDER THAN THE MAIN LINE MARKING WIDTH SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

LEGEND

RAMP MARKINGS

- WHITE LINES
- YELLOW LINES
- CHANNELIZATION WHITE LINES
- WHITE DOTTED LINES (2' SOLID - 4' GAP)
- DIRECTION OF TRAFFIC FLOW



DETAIL - GORE MARKING TRANSITION CURVE

HANDICAPPED PAVEMENT MARKING DETAILS

THIS SHEET IS NOT TO SCALE

OTHER STDS. REQUIRED

REVISIONS AND CORRECTIONS

- SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
- JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.
- AUG. 18, 1995 - MISC. NOTE CHANGES
- FEB. 1, 1999 - CHANGED NOTES FOR ACCELERATION & DECELERATION LANES

APPROVED

Robert F. Stattler Acting

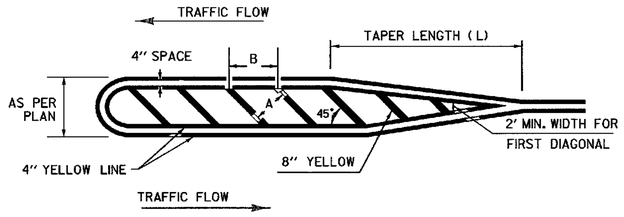
DIRECTOR OF PROJECT DEVELOPMENT

PAVEMENT MARKING DETAILS

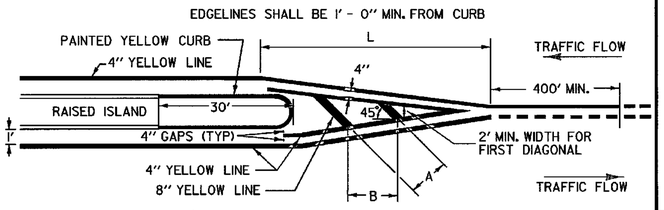
/traf/std/stdel91.dgn/stdel91.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-191



PAINTED ISLAND DETAIL



ISLAND APPROACH MARKINGS

DIMENSIONS		CONDITIONS FOR USE	
A	B		
5'	7'	LOW SPEED OR HIGH SPEED/W POOR SIGHT DISTANCE, <200'	WHERE LENGTH OF DIAGONAL AREA IS 75' MAX.
10'	14'	HIGH SPEED AND GOOD SIGHT DISTANCE, ≥200'	WHERE LENGTH OF DIAGONAL AREA EXCEEDS 75'

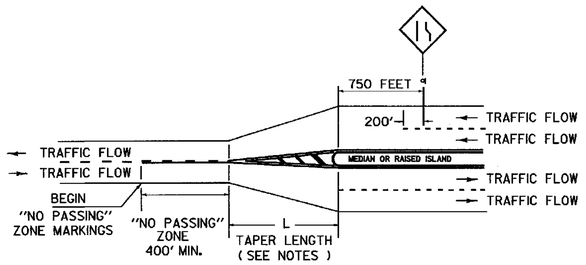
TAPER LENGTH NOTES

1. FOR DESIGN OF LEFT OR RIGHT TURN LANES REFER TO VTRANS * GUIDELINE FOR DETERMINING STORAGE, TAPER AND DECELERATION LENGTHS FOR LEFT AND RIGHT-TURN LANES AT INTERSECTIONS*
2. MINIMUM LENGTH OF TAPER = (L) — L = 100 FEET ≤ 30 mph; L = 180 FEET > 30 mph
3. THE ENTIRE TAPER LENGTH MAY BE USED FOR DECELERATION.

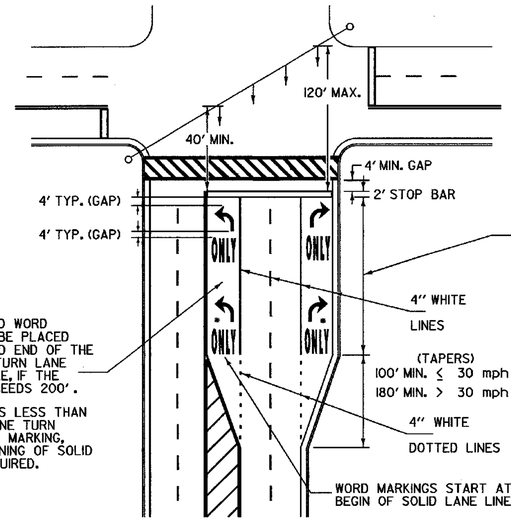
NOTE:

A SOLID LINE IN THE DIRECTION OF TRAVEL IS BEGUN AT A LOCATION 400 FEET MIN. IN ADVANCE OF THE BEGIN TAPER FOR THE PAVEMENT WIDTH TRANSITION.

PASSING ZONE SHOWN FOR REFERENCE ONLY, ACTUAL MARKINGS BASED ON FIELD CONDITIONS.



"NO PASSING" ZONE LAYOUT IN PAVEMENT WIDTH TRANSITIONS, TWO LANE HIGHWAY TO DIVIDED HIGHWAY



EXCLUSIVE TURN LANES (LEFT OR RIGHT) LANE LINES SHALL BE SOLID AND EXTEND BACK FROM THE STOP LINE TO THE POINT OF FULL LANE WIDTH OF THE TURN LANE.

FOR DESIGN OF LEFT OR RIGHT TURN LANES REFER TO VTRANS * GUIDELINE FOR DETERMINING STORAGE, TAPER AND DECELERATION LENGTHS FOR LEFT AND RIGHT-TURN LANES AT INTERSECTIONS*

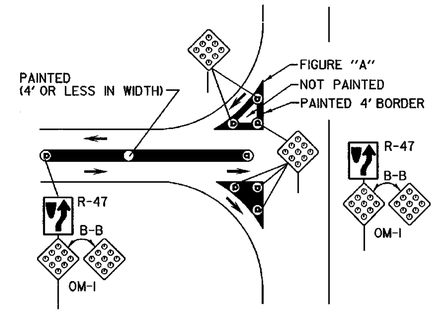
TYPICAL MARKINGS FOR SIGNALIZED INTERSECTION

THE FOLLOWING GUIDELINES WILL BE USED WHEN PAINTING ISLAND ON STATE HIGHWAYS AND RECOMMENDED FOR ISLANDS ON OTHER SYSTEMS WITHIN THE STATE.

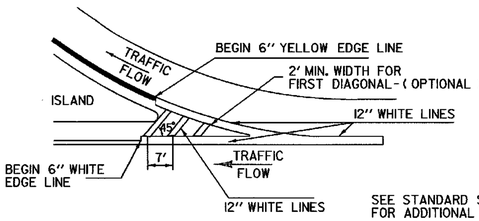
I. PAINTING: ISLANDS WHICH ARE FOUR FEET IN WIDTH AND TRIANGLE ISLANDS WHICH ARE LESS THAN FOUR HUNDRED AND FIFTY SQUARE FEET SHALL BE PAINTED ENTIRELY. TRIANGLES WHICH ARE FOUR HUNDRED AND FIFTY SQUARE FEET AND LARGER SHALL BE PAINTED WITH A FOUR FOOT BORDER AS SHOWN ON FIGURE "A" OF THE PAINTED ISLAND DETAIL.

II. SIGNS: ALL APPROACH NOSES TO THE ISLANDS IN THE LINE OF TRAFFIC WILL BE SIGNED WITH A KEEP RIGHT (R-47) SIGN AS WELL AS OBJECT MARKERS PLACED BACK TO BACK TO INDICATE THE BEGINNING (END) OF THE ISLAND.

III. EXCEPTIONS: THERE WILL BE SPECIAL CASES WHICH REQUIRE AN EXCEPTION TO, OR MODIFICATION OF THIS GUIDELINE. THESE QUESTIONS SHOULD BE REFERRED TO THE TRAFFIC DESIGN ENGINEER OR DELEGATED REPRESENTATIVE.



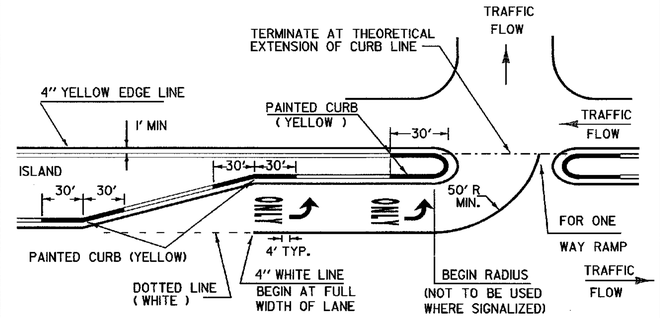
PAINTED ISLANDS



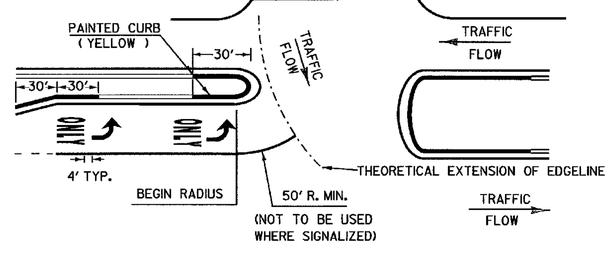
SEE STANDARD SHEET E-191 FOR ADDITIONAL DETAILS

GORE MARKING DETAIL - EXIT

TRANSVERSE LINES



TURN LANE AND PAINTED CURB DETAIL



CURB PAINTING: CURB SHALL BE PAINTED ON THE ISLAND NOSE AND TO A POINT 30 FEET FROM THE END OF THE ISLAND. IN ADDITION, CURB SHALL BE PAINTED 30 FEET FROM ANY CHANGE IN CURB DIRECTION.

THIS SHEET NOT TO SCALE

OTHER STDS. REQUIRED E-191 E-193

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE
OCT. 14, 1998 - CHANGED GORE MARKING DETAIL
DEC. 28, 1998 - CHANGED GORE MARKING HATCHING TO 12" PER FHWA
OCT. 12, 2000 - CHANGED TURN LANE CRITERIA

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

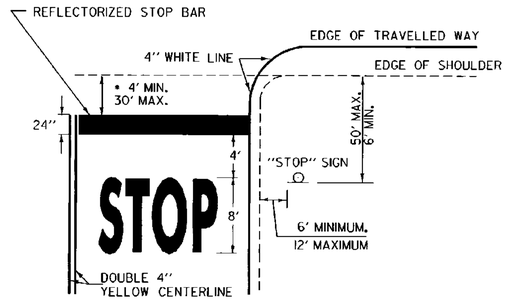
ROADWAY & TRAFFIC DESIGN ENGINEER

PAVEMENT MARKING DETAILS

/traf/english/std/e192.dgn

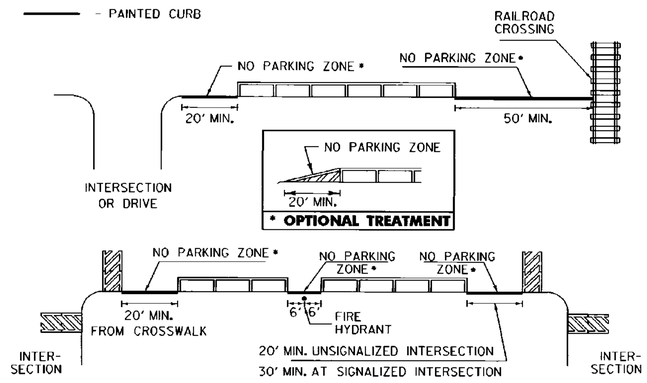
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-192

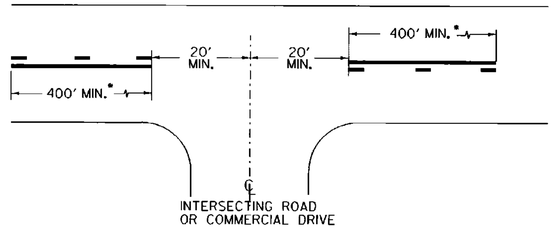


• THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

STOP BAR LAYOUT



NO PARKING LAYOUT DETAILS



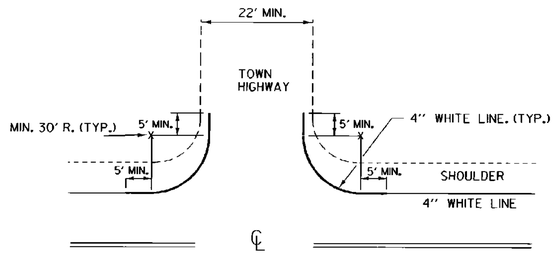
• THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

CENTERLINE BREAKES:

A. AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S. THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED

B. COMMERCIAL DRIVES:
1. WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
2. SIGNIFICANT TRAFFIC VOLUMES EXISTS.
3. IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

CENTERLINE LAYOUT

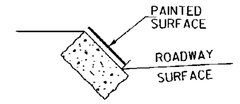


EDGELINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

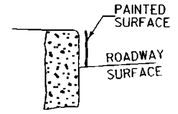
APPLY EDGELINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGELINE USING AN 80 FOOT GAP AT INTERSECTION.

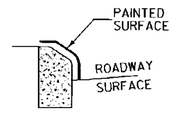
EDGELINE LAYOUTS



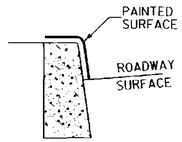
GRANITE SLOPE EDGING



VERTICAL GRANITE CURB

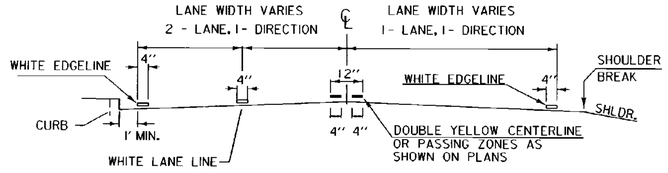


TYPE A (CONCRETE)

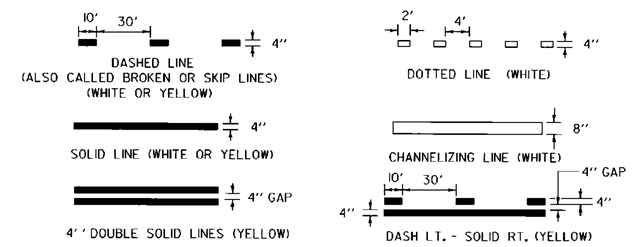


TYPE B (CONCRETE)

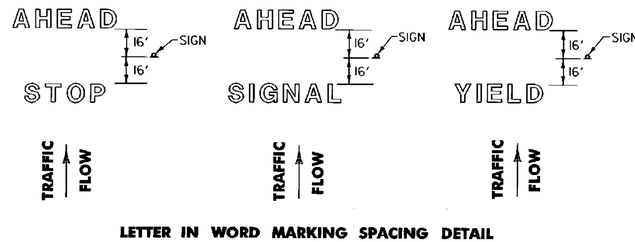
PAINTED CURB



PAVEMENT MARKING PLACEMENT DETAIL

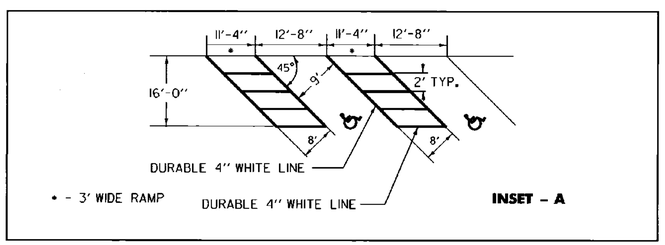


PAVEMENT MARKING LINE DETAILS



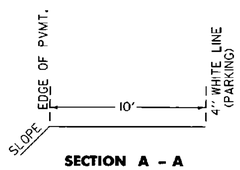
LETTER IN WORD MARKING SPACING DETAIL

NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD



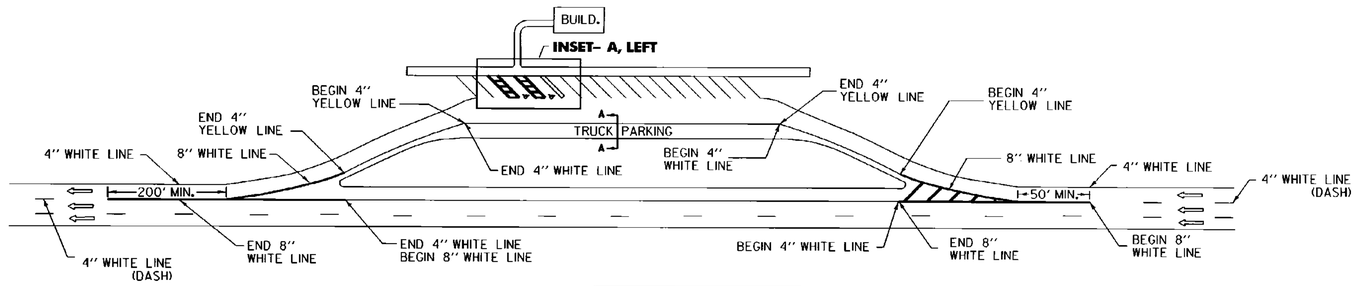
NOTE:

SEE STANDARD SHEET E-191 FOR HANDICAP SYMBOL POSITIONING AND DETAIL.



SECTION A - A

TRUCK PARKING DETAIL



REST AREA PARKING DETAILS

THIS SHEET IS NOT TO SCALE

OTHER STDS. E - 191, E - 192 REQUIRED

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

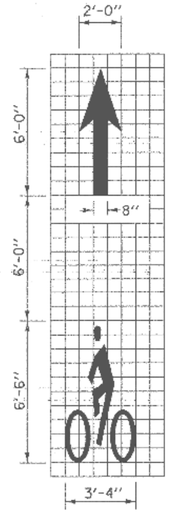
TRAFFIC AND SAFETY ENGINEER

PAVEMENT MARKING DETAILS

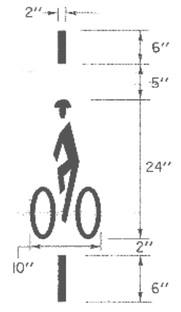
/traf/std/stdel93.dgn/stdel93.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-193

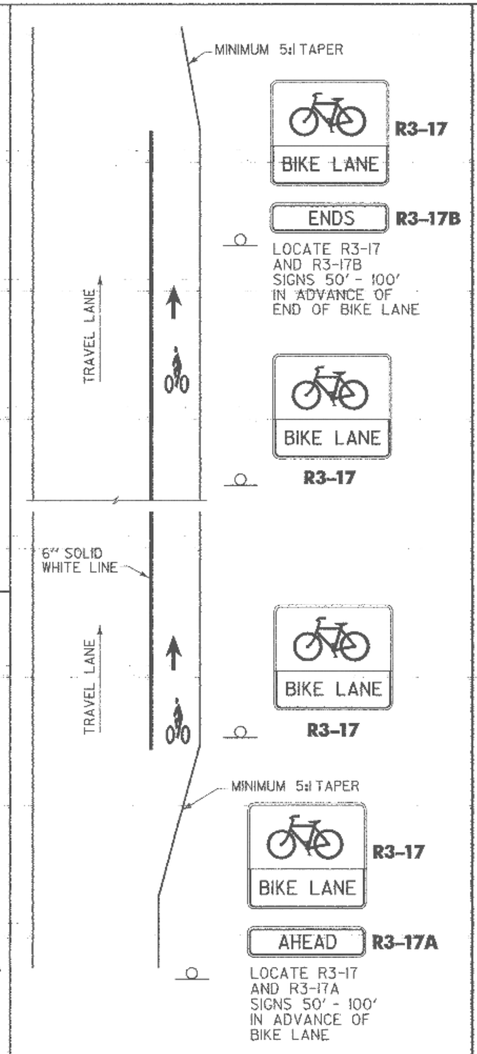


BICYCLE STENCIL PAVEMENT MARKING

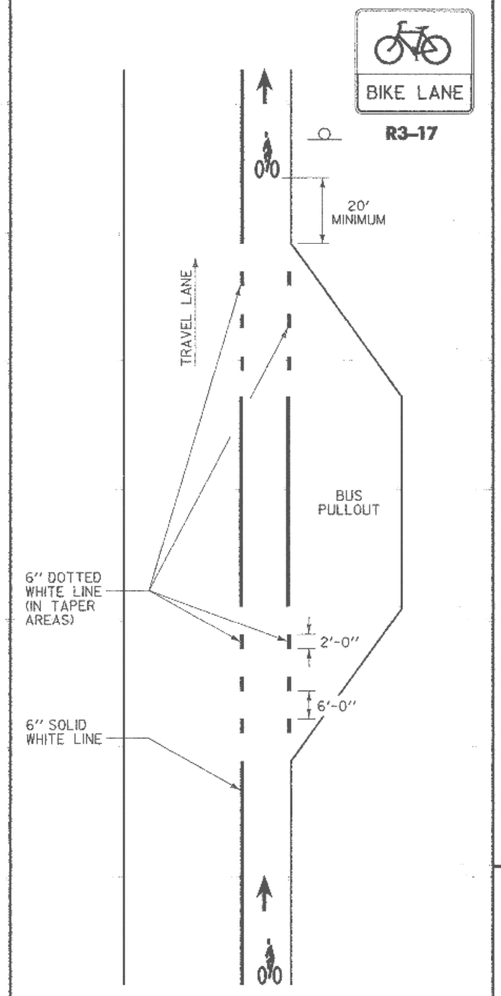


NOTE:
IF THE BICYCLE DETECTOR PAVEMENT MARKING IS USED, IT SHALL BE PLACED IN THE AREA OF HIGHEST SENSITIVITY OF VEHICLE DETECTOR LOOPS IN OUTSIDE TRAVEL LANES OR WHEN DETECTOR LOOPS ARE PLACED IN BICYCLE LANES. WHEN PAVEMENT MARKING IS USED, AN R10-22 SIGN SHALL BE INSTALLED.

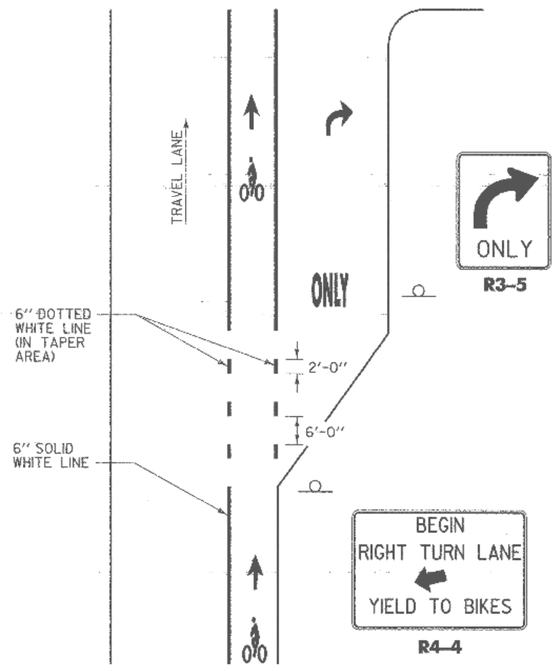
BICYCLE DETECTOR PAVEMENT MARKING



BICYCLE LANE PAVEMENT MARKINGS

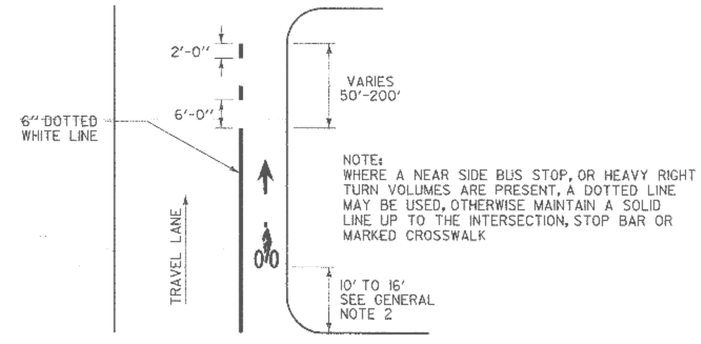


BUS PULLOUT WITH BICYCLE LANE PAVEMENT MARKINGS

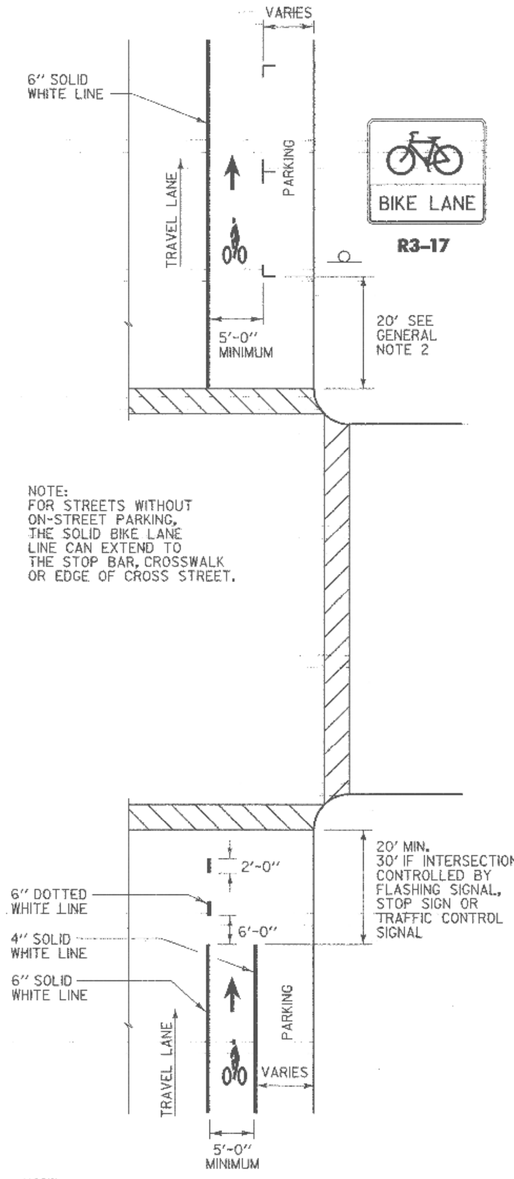


NOTE:
REFER TO VAOT STANDARD DRAWING E-192 FOR DETAILS ON PAVEMENTS MARKINGS FOR TURNING LANES.

BIKE LANE/RIGHT TURN LANE PAVEMENT MARKINGS



OPTIONAL BIKE LANE PAVEMENT MARKINGS WITH BUS STOPS OR HEAVY RIGHT TURN VOLUMES



NOTE:
WHERE BICYCLE LANES ARE ADJACENT TO ON-STREET PARKING, A BICYCLE LANE WIDTH OF AT LEAST 5'-0" IS RECOMMENDED.

BIKE LANE PAVEMENT MARKINGS AT INTERSECTION WITH ON STREET PARKING

GENERAL NOTES

1. ALL BICYCLE LANE PAVEMENT MARKINGS TO BE WHITE RETROREFLECTORIZED PAINT OR MAXIMUM 90 MIL THICK SLIP RESISTANT DURABLE MARKINGS.
2. ADJUST LOCATION OF BICYCLE LANE PAVEMENT MARKING TO AVOID PLACEMENT WHERE IT IS LIKELY TO BE TRAVERSED BY VEHICLES, SUCH AS AT DRIVEWAYS.
3. REFER TO VAOT PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL FOR GUIDANCE ON OTHER BIKE LANE CONFIGURATIONS.
4. PLACE BICYCLE STENCIL PAVEMENT MARKINGS AFTER STREET INTERSECTIONS AND AT INTERMEDIATE LOCATIONS ON LONG UNINTERRUPTED SECTIONS.

OTHER STDS. REQ'D:
E-143B, E-172, E-192

THIS SHEET IS NOT TO SCALE

REVISIONS AND CORRECTIONS

FEB. 06, 2004	DATE OF ORIGINAL ISSUE
MAR. 15, 2005	REVISED SIGNS AND ADDED BICYCLE DETECTOR PAVEMENT MARKING

APPROVED

Richard Tetreault
DIRECTOR OF PROGRAM DEVELOPMENT

Alan E. Dewaide
LOCAL TRANSPORTATION FACILITIES PROGRAM MANAGER

FEDERAL HIGHWAY ADMINISTRATION

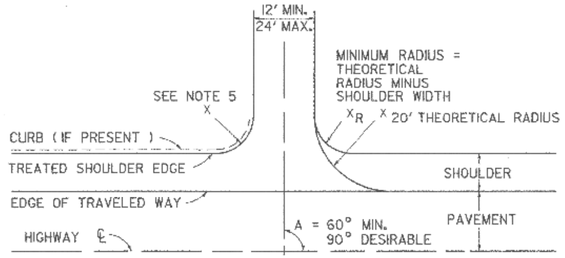
BICYCLE PAVEMENT MARKINGS AND SIGN LAYOUT

VERMONT AGENCY OF TRANSPORTATION

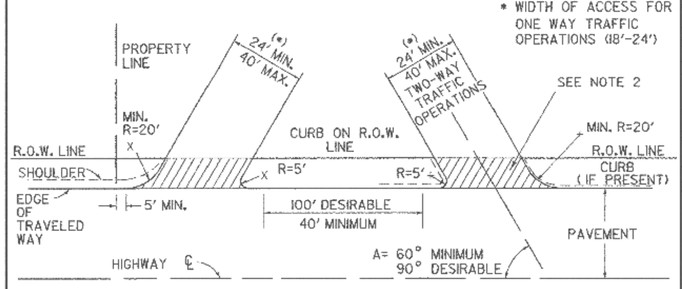
STANDARD
E-194

Pedestrian Zone Details

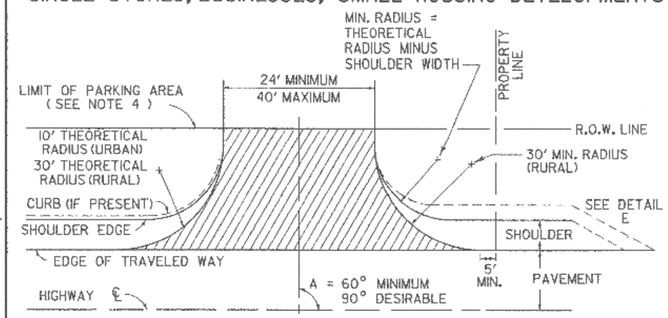
DETAIL A — RESIDENTIAL DRIVE



DETAIL B — DUAL COMMERCIAL DRIVE TO BE USED ONLY UNDER SPECIAL CONDITIONS

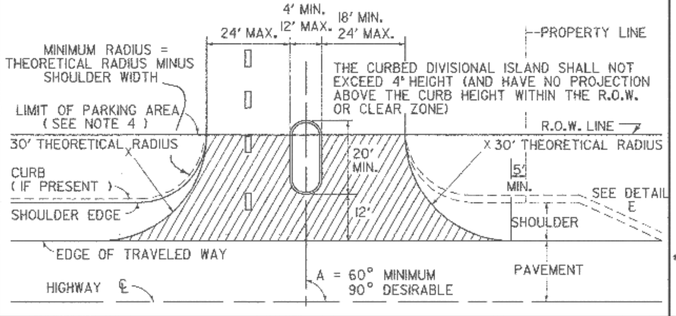


DETAIL C — TWO-WAY UNDIVIDED COMMERCIAL DRIVE FOR SINGLE STORES, BUSINESSES, SMALL HOUSING DEVELOPMENTS

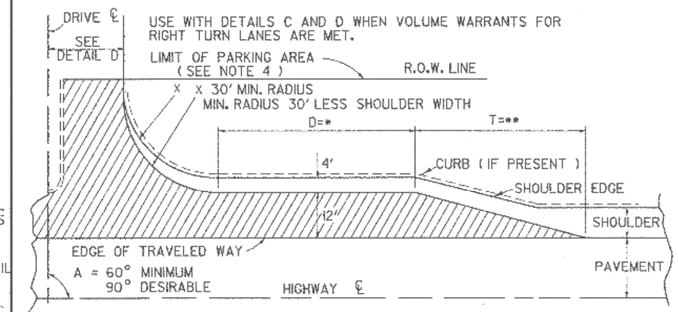


THIS DETAIL WILL ALSO APPLY TO COMMERCIAL SERVICE DRIVES, WHEN AUTHORIZED, HAVING A MAXIMUM WIDTH OF 20'. THE SERVICE DRIVE WILL HAVE A "SERVICE VEHICLES ONLY" SIGN PLACED AT THE HIGHWAY ROW LINE. SIGN SHALL BE 18"X 24" AS PRESCRIBED IN THE "STANDARD HIGHWAY SIGNS BOOK", A SUPPLEMENTAL PUBLICATION TO MUTCD.

DETAIL D — TWO-WAY COMMERCIAL DRIVE WITH DIVISIONAL ISLAND FOR SHOPPING CENTERS, LARGE HOUSING DEVELOPMENTS, INDUSTRIAL PLANTS AND SERVICE STATIONS



DETAIL E — RIGHT TURN LANE FOR COMMERCIAL DRIVE (UNSIGNALIZED INTERSECTIONS ONLY)

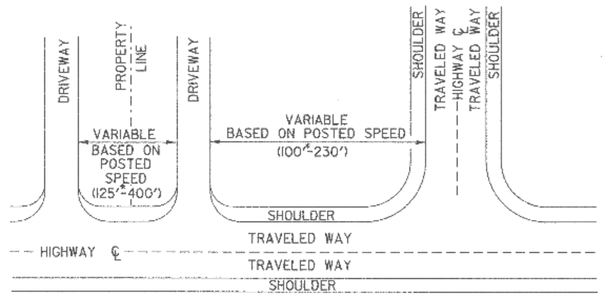


* STORAGE LENGTH IS VARIABLE DEPENDING ON TRAFFIC VOLUME AND MUST BE ADJUSTED TO PROVIDE PROPER DECELERATION LENGTH. REFER TO VAOT STANDARD E-192

TAPERS

SPEED (MPH)	30	35	40	50
**LENGTH (MIN)(FT)(T)	100	120	140	180
RATE	8:1	10:1	12:1	15:1

DETAIL F — MINIMUM HORIZONTAL SEPARATION BETWEEN DRIVEWAYS AND INTERSECTING SIDEROADS



* MINIMUM UNLESS NO OTHER REASONABLE ACCESS IS AVAILABLE AND PRIOR APPROVAL IS GRANTED BY THE VAOT ITEMS SUCH AS TRAFFIC SIGNALS, HIGH TRAFFIC VOLUMES, OR FUNCTIONAL CLASS OF HIGHWAY SHOULD BE CONSIDERED WHEN DETERMINING APPROPRIATE SEPARATION DISTANCE. WHEN CURRENT RECOMMENDED SEPARATION DISTANCE CANNOT BE OBTAINED RESTRICTION OF TURNING MOVEMENTS MAY BE REQUIRED.

NOTES:

1. THIS SHEET IS INTENDED FOR USE BY DESIGNERS ON HIGHWAY PROJECTS AND IN CONJUNCTION WITH A PERMIT FOR WORK WITHIN HIGHWAY RIGHTS OF WAY (FORM TA 210). ALL CONSTRUCTION REQUIRED BY THE PERMIT AND INDICATED ON THIS SHEET SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND IS SUBJECT TO THE APPROVAL OF THE VT. AGENCY OF TRANSPORTATION. WHEN USED WITH THE PLANS FOR A HIGHWAY CONSTRUCTION PROJECT, THIS SHEET IS INTENDED TO BE A GUIDE FOR THE DESIGNER CONCERNING DRIVE WIDTHS, HORIZONTAL, VERTICAL AND GEOMETRIC CHARACTERISTICS.
2. ALL COMMERCIAL DRIVES SHALL BE PAVED FROM THE EDGE OF THE TRAVELED WAY TO THE HIGHWAY RIGHT-OF-WAY, TO THE FARTHEST POINT OF CURVATURE ON THE DRIVEWAY EDGE OR AS DIRECTED BY THE DISTRICT TRANSPORTATION ADMINISTRATOR. THIS PAVING IS INDICATED IN DETAILS (B THRU E) BY HATCHING.
3. DEPTH OF SUBBASE AND PAVEMENT TO BE THE SAME AS HIGHWAY OR AS SHOWN IN DETAIL J WITHIN THE LIMITS OF THE HIGHWAY RIGHT-OF-WAY.
4. VEHICULAR ACCESS FROM PARKING AREAS TO THE RIGHT-OF-WAY AT OTHER THAN APPROVED ACCESS POINTS WILL BE PREVENTED BY THE CONSTRUCTION OF CURBING OR OTHER SUITABLE PHYSICAL BARRIER.
5. IF CURB IS PRESENT, SEE APPROPRIATE CURB DETAIL STANDARD OR MATCH TOWN/CITY STANDARD CURB TREATMENT.
6. WHERE TRAFFIC VOLUME FOR A PROJECT IS SUBSTANTIAL THE AGENCY MAY REQUIRE SPECIAL LANES FOR TURNING, SIGNALS OR OTHER MODIFICATIONS. BASED ON TRAFFIC STUDIES THE AGENCY WILL DETERMINE SPECIFIC TREATMENT TO BE USED. ON DEVELOPER PROJECTS THE AGENCY WILL WORK WITH THE APPLICANT TO IMPLEMENT CHANGES TO THE STATE HIGHWAY.
7. CIRCULAR DRAINAGE CULVERTS UNDER DRIVES SHALL HAVE A MINIMUM INSIDE DIAMETER (I.D.) OF 15". PIPE ARCHES USED UNDER DRIVES SHALL HAVE A MINIMUM INSIDE CROSS-SECTIONAL AREA EQUIVALENT TO THAT PROVIDED BY A 15" CIRCULAR PIPE.
8. THE OFFSET BETWEEN THE PROPERTY LINE AND THE EDGE OF THE DRIVEWAY MAY BE GOVERNED BY LOCAL ZONING LAWS. DRIVEWAY WIDTH RESTRICTIONS SHOWN PERTAIN ONLY TO THE AREA WITHIN THE HIGHWAY R.O.W. OR THE END OF THE TURNING RADIUS WHICHEVER IS GREATEST.
9. DRIVEWAY GRADES STEEPER THAN THOSE SHOWN MAY BE ALLOWED AS LONG AS A 20' APPROACH AREA IS ACHIEVED FOR THE VEHICLE TO PAUSE BEFORE ENTERING THE HIGHWAY. (WHERE CURB & SIDEWALKS EXIST, SEE STANDARDS C-2A & C-2B)
10. INTERSECTION SIGHT DISTANCES, EQUAL TO OR GREATER THAN THOSE SHOWN BELOW, SHOULD BE PROVIDED IN BOTH DIRECTIONS FOR ALL DRIVES ENTERING ON PUBLIC HIGHWAYS, UNLESS OTHERWISE APPROVED BY THE AGENCY OF TRANSPORTATION. INTERSECTION SIGHT DISTANCE IS MEASURED FROM A POINT ON THE DRIVE AT LEAST 15 FEET FROM THE EDGE OF TRAVELED WAY OF THE ADJACENT ROADWAY AND MEASURED FROM A HEIGHT OF EYE OF 3.5 FEET ON THE DRIVE TO A HEIGHT OF 3.50 FEET ON THE ROADWAY.

SIGHT DISTANCE CHART

POSTED SPEED OR DESIGN SPEED (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT)	MINIMUM INTERSECTION SIGHT DISTANCE * (FT)
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720

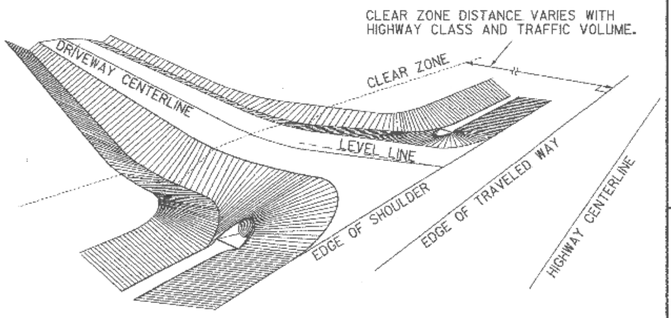
THE ABOVE VALUES ARE TAKEN FROM THE 2004 AASHTO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS & STREETS."

NOTE : ADVANCE WARNING SIGNS WILL BE REQUIRED IF OBTAINABLE INTERSECTION SIGHT DISTANCES ARE BELOW MINIMUM STOPPING SIGHT DISTANCES.

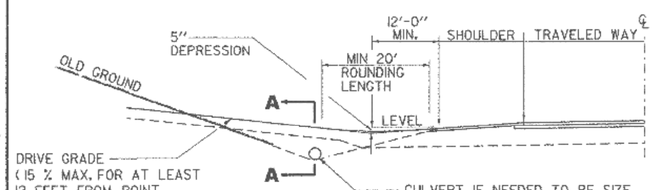
THE CHART IS ENTERED TO SELECT DESIGN VALUES BASED ON THE POSTED SPEED LIMIT IN MPH. VALUES FOR DESIGN ARE CALCULATED BASED ON THE DESIGN SPEED IN MPH.

* ASSUMES A GAP OF 7.5 SECONDS IN THE TRAFFIC STREAM ON THE HIGHWAY MAINLINE BASED ON THE HIGHWAY DESIGN SPEED IN MPH. THIS ALLOWS A STOPPED PASSENGER VEHICLE TO ENTER THE MAINLINE FROM THE DRIVE WITHOUT UNDULY INTERFERING WITH THE HIGHWAY OPERATIONS.

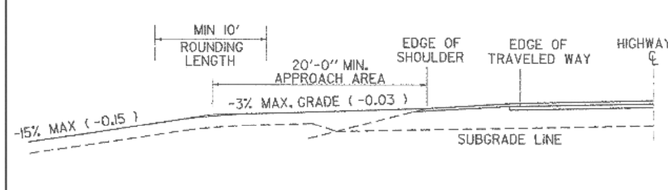
DETAIL G — PERSPECTIVE SKETCH OF DRIVE INTERSECTION SHOWING DEPRESSION



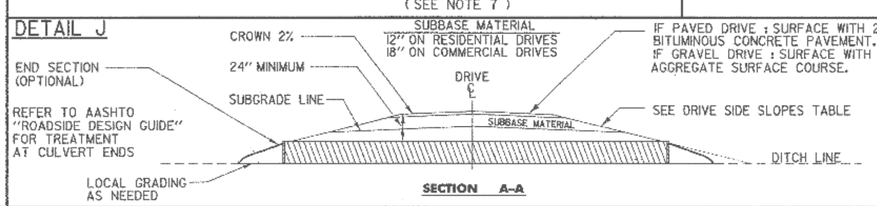
DETAIL H — PROFILE OF DRIVE INTERSECTION SHOWING 5" DEPRESSION (CUT SECTION)



DETAIL I — PROFILE OF DRIVE INTERSECTION (FILL SECTION)



DETAIL J



DRIVE SIDE SLOPES

LOCATION OF SLOPE	SLOPE RATE
V > 40 MPH	1:6 OR FLATTER
URBAN AREAS, OR V ≤ 40 MPH	1:4 DESIRABLE 1:2 ALLOWABLE
OUTSIDE CLEAR ZONE	1:2 OR FLATTER

REVISIONS AND CORRECTIONS

- DEC. 11, 1992 - THIS STANDARD SUPERCEDES B-71 (7/23/80R), B-71A (3/12/90), AND B-13 (12/14/71).
- JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
- MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
- NOV. 16, 2000 - CHANGES MADE TO CONFORM WITH LANGUAGE AND DIMENSIONS IN ACCESS MANAGEMENT PROGRAM GUIDELINES.
- FEB 1, 2004 - CHANGES MADE TO SIGHT DISTANCE CHART TO CONFORM WITH NEWEST AASHTO CRITERIA.
- JULY 8, 2005 - CHANGE MADE TO OBJECT HEIGHT TO CONFORM WITH NEWEST AASHTO CRITERIA

APPROVED

Richard Tetreault
DIRECTOR OF PROGRAM DEVELOPMENT

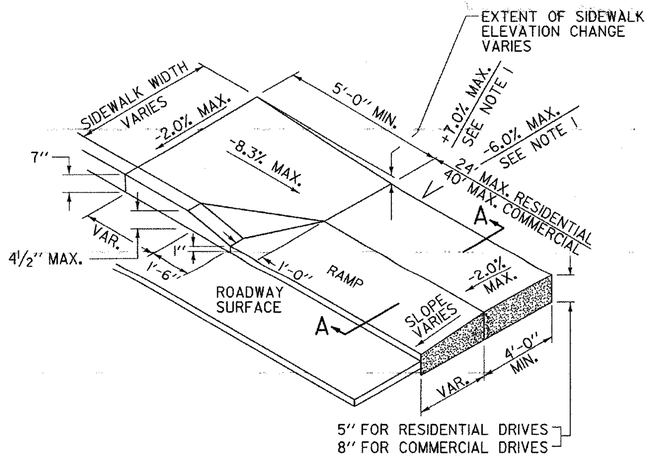
Craig S. Keller
CHIEF OF UTILITIES AND PERMITS

Michael Conway
FEDERAL HIGHWAY ADMINISTRATION

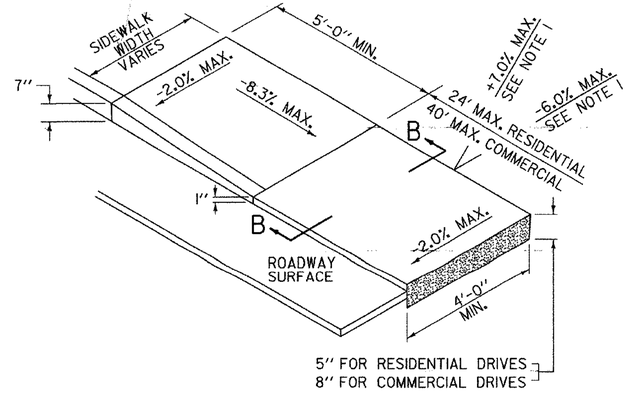
STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES

VERMONT AGENCY OF TRANSPORTATION

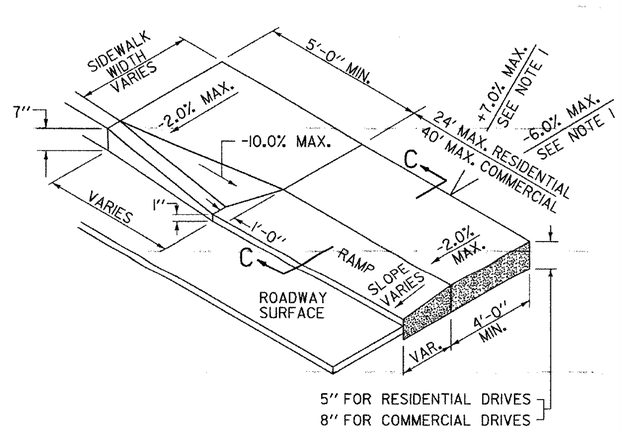
STANDARD B-71



TYPE 1 – COMBINATION CROSSING WITH FLARE



TYPE 2 – PARALLEL CROSSING WITH LANDING



TYPE 3 – LEVEL LANDING WITH FLARE

GENERAL NOTES :

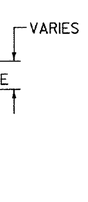
1. THESE TYPICALS APPLY WHERE GRADE OF DRIVE IS BETWEEN -6.0% AND +7.0%. FOR GRADES IN EXCESS OF THESE, ALTERNATIVE CROSS SECTION OF RAMP AND SIDEWALK MAY BE APPROVED BY THE ENGINEER.

2. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) OF RAMPS AND FLARES.

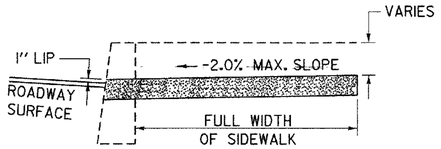
3. DRIVEWAY RAMPS TO BE PAID FOR AS PORTLAND CEMENT CONCRETE SIDEWALK.

4. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200'. DRIVEWAYS MEETING THESE REQUIREMENTS MAY BE USED AS A WHEELCHAIR PASSING AREA.

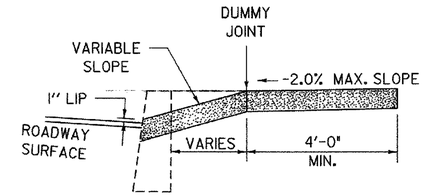
5. IN NO CASE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 2.0%.



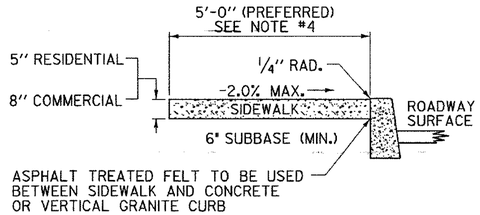
SECTION A – A



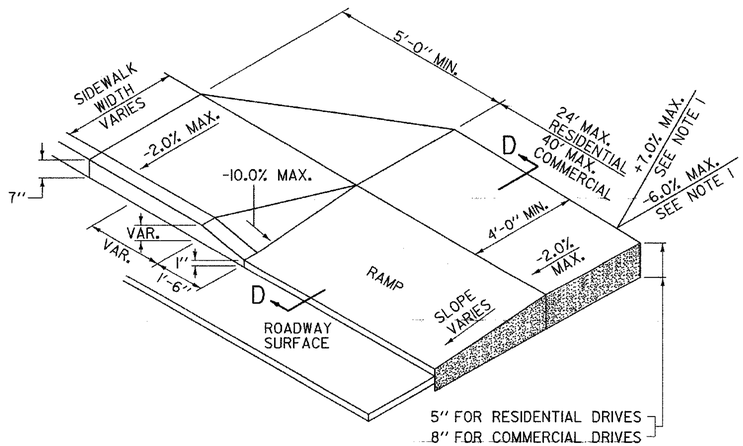
SECTION B – B



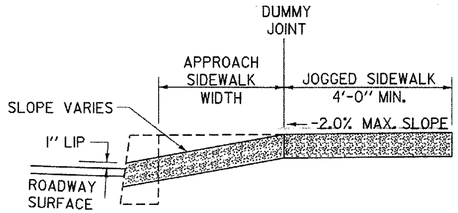
SECTION C – C



PORTLAND CEMENT CONCRETE SIDEWALK



TYPE 4 – JOGGED CROSSING



SECTION D–D

REVISIONS AND CORRECTIONS

DEC. 14, 1971 - ORIGINAL APPROVAL DATE

OCT. 25, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS

JUNE 1, 1994 - REISSUED WITHOUT CHANGE, UNDER NEW SIGNATURES.

JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES.

OCT. 14, 2005 - UPDATED TO REFLECT REVISED ADAAG STANDARDS

APPROVED

Asst DIRECTOR OF PROGRAM DEVELOPMENT

ROADWAY PROGRAM MANAGER

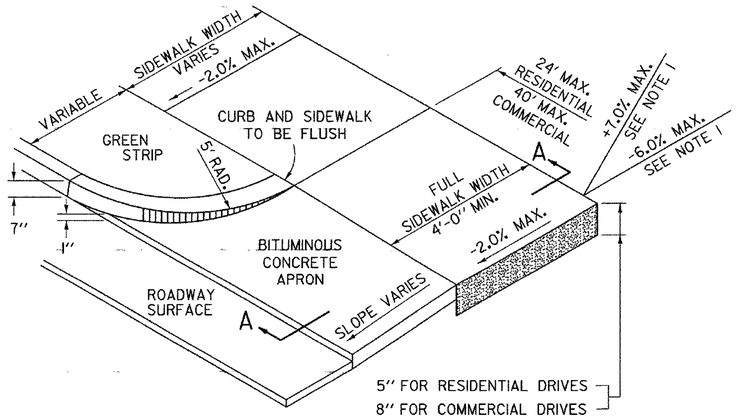
FEDERAL HIGHWAY ADMINISTRATION

PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK ADJACENT TO CURB

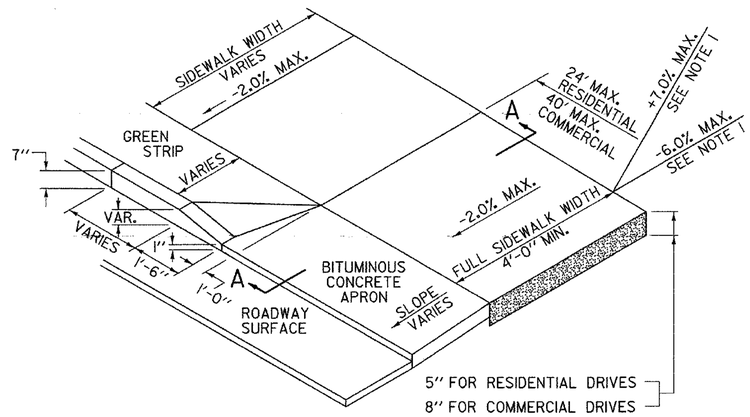
OTHER STANDARDS REQUIRED: B-71

VERMONT AGENCY OF TRANSPORTATION

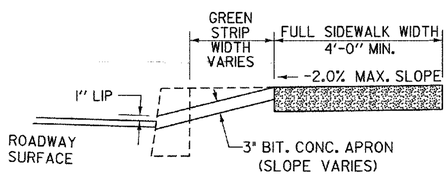
STANDARD C-2A



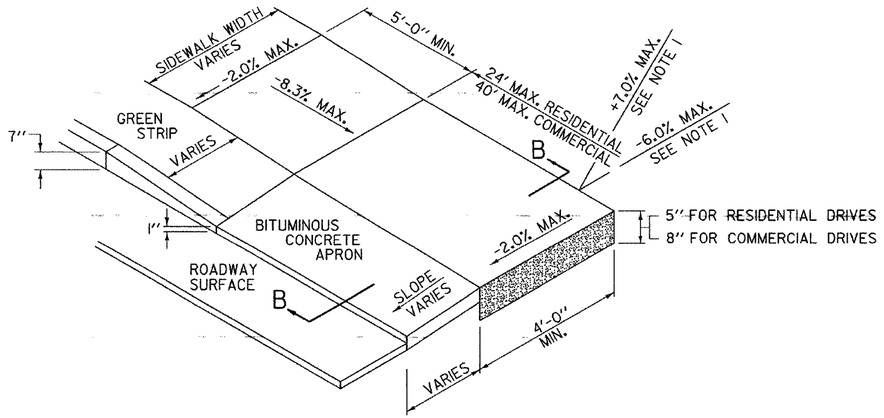
TYPE 5 – LEVEL LANDING WITH RETURN RADIUS



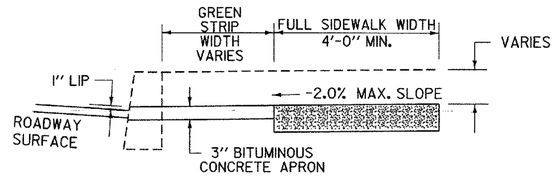
TYPE 6 – LEVEL LANDING WITH FLARE



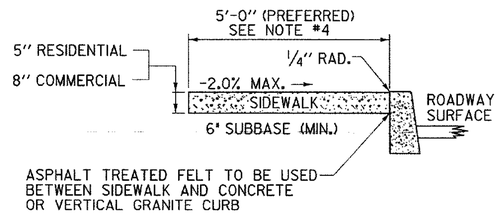
SECTION A–A



TYPE 7 – PARALLEL CROSSING WITH LANDING



SECTION B–B



PORTLAND CEMENT CONCRETE SIDEWALK

GENERAL NOTES :

1. THESE TYPICALS APPLY WHERE GRADE OF DRIVE IS BETWEEN -6.0% AND +7.0%. FOR GRADES IN EXCESS OF THESE, ALTERNATIVE CROSS SECTION OF RAMP AND SIDEWALK MAY BE APPROVED BY THE ENGINEER.
2. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) OF RAMPS AND FLARES.
3. DRIVEWAY RAMPS TO BE PAID FOR AS PORTLAND CEMENT CONCRETE SIDEWALK.
4. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200'. DRIVEWAYS MEETING THESE REQUIREMENTS MAY BE USED AS A WHEELCHAIR PASSING AREA.
5. IN NO CASE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 2.0%.

OTHER STANDARDS REQUIRED: B-71

REVISIONS AND CORRECTIONS

DEC. 14, 1971 - ORIGINAL APPROVAL DATE

OCT. 25, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS

JUNE 1, 1994 - REISSUED WITHOUT CHANGE, UNDER NEW SIGNATURES.

JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES.

OCT. 14, 2005 - UPDATED TO REFLECT REVISED ADAAG STANDARDS

APPROVED

Asst DIRECTOR OF PROGRAM DEVELOPMENT

ROADWAY PROGRAM MANAGER

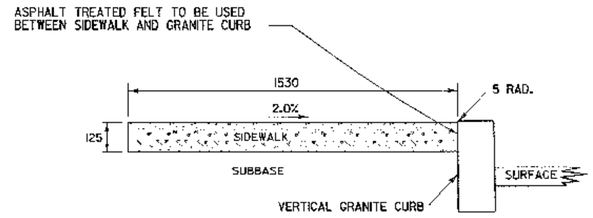
FEDERAL HIGHWAY ADMINISTRATION

PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK AND GREEN STRIP

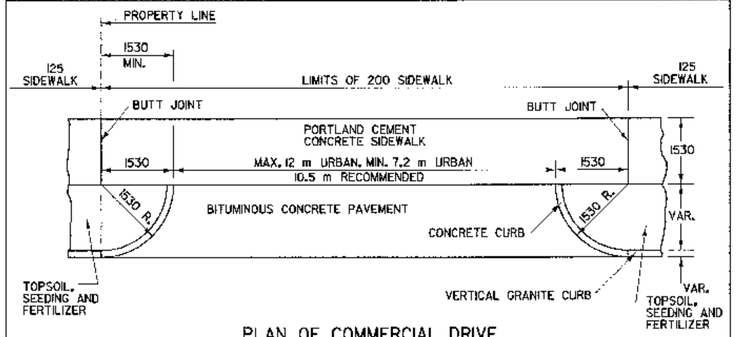
VERMONT AGENCY OF TRANSPORTATION

STANDARD

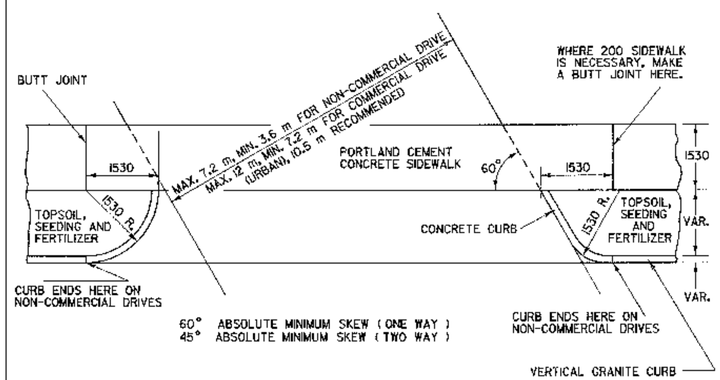
C-2B



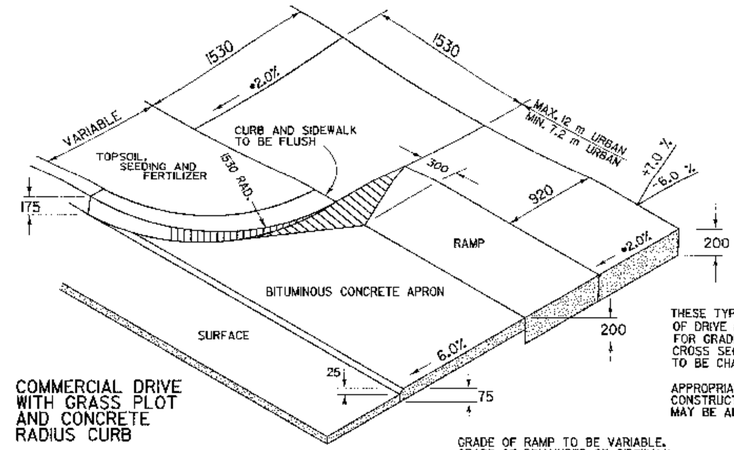
PORTLAND CEMENT CONCRETE SIDEWALK, 125
(WITH VERTICAL GRANITE CURB)



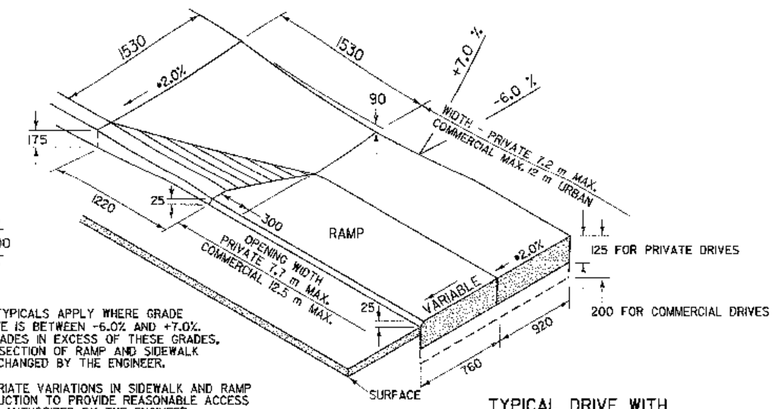
PLAN OF COMMERCIAL DRIVE



PLAN OF SKEW DRIVE



COMMERCIAL DRIVE
WITH GRASS PLOT
AND CONCRETE
RADIUS CURB

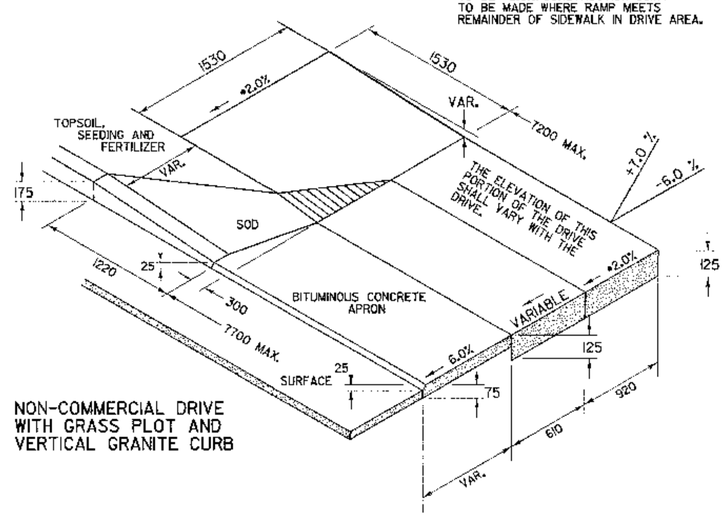


THESE TYPICALS APPLY WHERE GRADE OF DRIVE IS BETWEEN -6.0% AND +7.0%. FOR GRADES IN EXCESS OF THESE GRADES, CROSS SECTION OF RAMP AND SIDEWALK TO BE CHANGED BY THE ENGINEER.

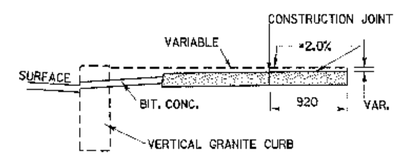
APPROPRIATE VARIATIONS IN SIDEWALK AND RAMP CONSTRUCTION TO PROVIDE REASONABLE ACCESS MAY BE AUTHORIZED BY THE ENGINEER.

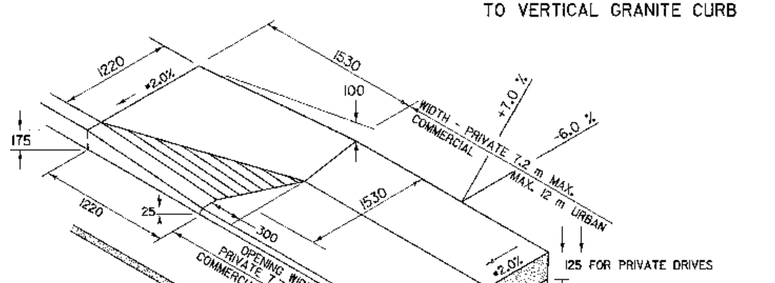
TYPICAL DRIVE WITH
1530 SIDEWALK ADJACENT
TO VERTICAL GRANITE CURB

GRADE OF RAMP TO BE VARIABLE.
GRADE OF REMAINDER OF SIDEWALK TO BE •2.0%. CONSTRUCTION JOINT TO BE MADE WHERE RAMP MEETS REMAINDER OF SIDEWALK IN DRIVE AREA.



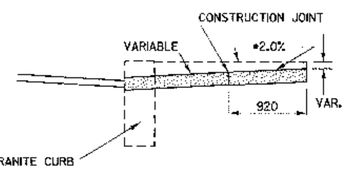
NON-COMMERCIAL DRIVE
WITH GRASS PLOT AND
VERTICAL GRANITE CURB





NOTE:
SIDEWALKS THAT ARE LESS THAN 1530 WIDE MAY REQUIRE PASSING AREAS. SEE THE LATEST EDITION OF ADA REQUIREMENTS.

TYPICAL DRIVE WITH
1220 SIDEWALK ADJACENT
TO VERTICAL GRANITE CURB



RAMPS TO BE PAID FOR AS PORTLAND CEMENT CONCRETE SIDEWALK
• IN NO CASE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 2.0%.

NOTE:
FOR FURTHER DETAILS REGARDING DRIVEWAYS, SEE STANDARD B-71M.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS

JUNE 13, 1997 ORIGINAL APPROVAL DATE
JAN. 3, 2000 - MINOR EDITORIAL CHANGES

APPROVED

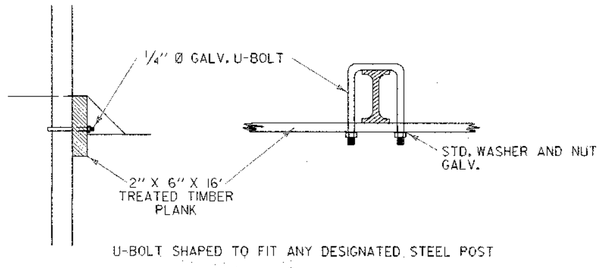
DIRECTOR OF PROJECT DEVELOPMENT

ROADWAY AND TRAFFIC DESIGN ENGINEER

PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH VERTICAL GRANITE CURB

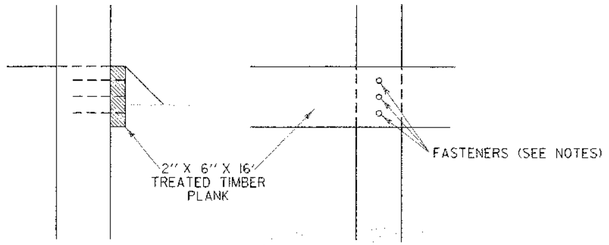
VERMONT AGENCY OF TRANSPORTATION

Metric
STANDARD
C-2BM

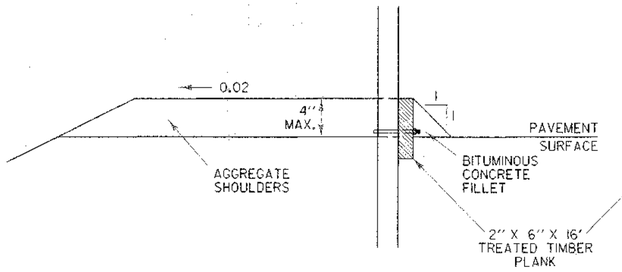


U-BOLT SHAPED TO FIT ANY DESIGNATED STEEL POST

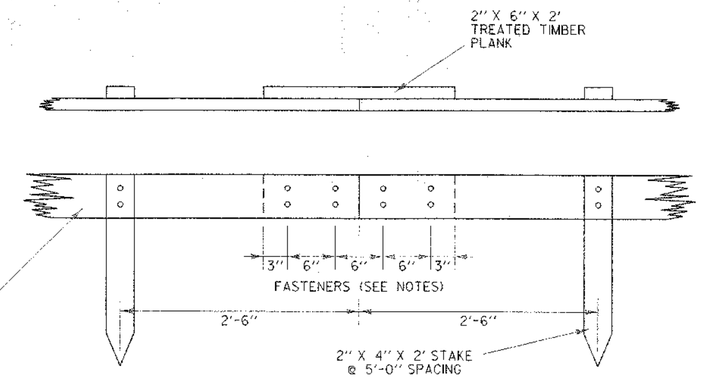
WITH STEEL POSTS



WITH WOOD POSTS (EXISTING CONDITION)

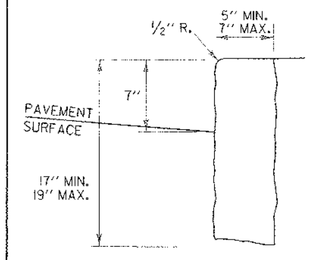


BITUMINOUS CONCRETE FILLET DETAIL

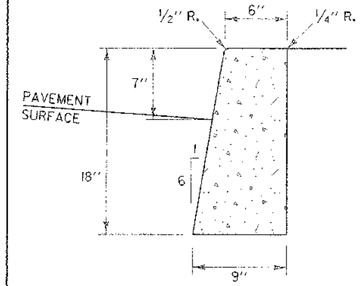


SPLICE DETAIL

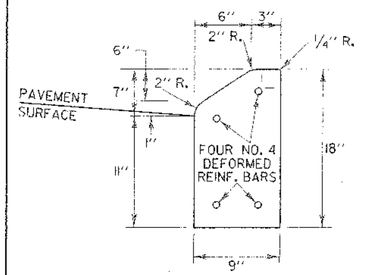
TREATED TIMBER CURB



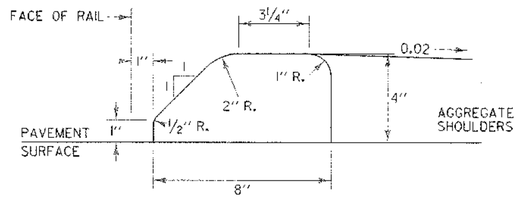
VERTICAL GRANITE CURB



CAST IN PLACE CONCRETE CURB, TYPE B

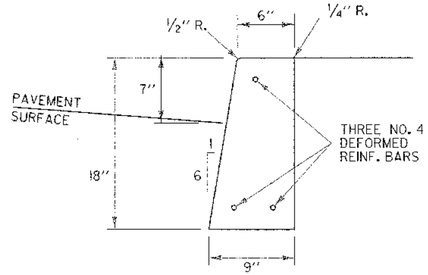


PRECAST REINFORCED CONCRETE CURB, TYPE A

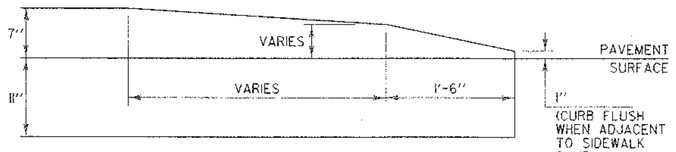


USE ONLY WITH STEEL BEAM GUARDRAIL

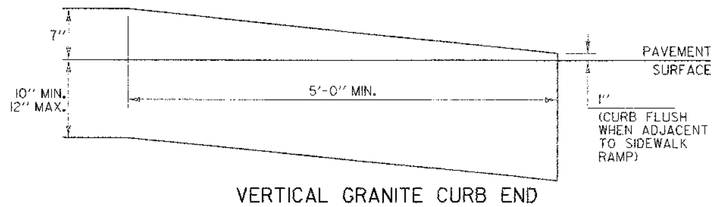
BITUMINOUS CONCRETE CURB, TYPE A



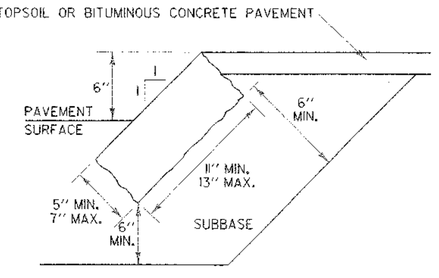
PRECAST REINFORCED CONCRETE CURB, TYPE B



CONCRETE CURB END



VERTICAL GRANITE CURB END



EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

GRANITE SLOPE EDGING

GENERAL NOTES:

1. HEIGHT OF REVEAL OF CURB SHALL NOT EXCEED FOUR INCHES WHERE DESIGN OR POSTED SPEED IS EQUAL TO OR GREATER THAN 40 MPH AND WHEN INSTALLED WITH GUARDRAIL (STANDARD SHAPE TO BE BURIED TO THIS DEPTH).
2. WHEN CONCRETE SIDEWALK IS CONSTRUCTED ADJACENT TO CONCRETE OR VERTICAL GRANITE CURB, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB FOR THE TOTAL DEPTH OF THE SIDEWALK.
3. FASTENERS (20d NAILS OR SCREWS) SHALL BE CORROSION RESISTANT TO THE TREATED LUMBER.
4. FOR SPECIFICATIONS FOR EXPANSION/CONTRACTION JOINTS AND LENGTHS OF SECTIONS, SEE SECTION 616.
5. JOINTS BETWEEN CURB SECTIONS SHALL BE MORTARED IN CONFORMANCE WITH SECTION 616.
6. BITUMINOUS CONCRETE AND TREATED TIMBER CURB SHALL BE IN CONFORMANCE WITH SECTION 616.
7. TWO INCH MINIMUM CLEARANCE FROM FACE OF CONCRETE TO EDGE OF REINFORCING STEEL.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

FEB. 11, 2008 - ORIGINAL APPROVAL DATE

APPROVED

Kevin S. Marchie
ROADWAY, TRAFFIC & SAFETY ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark B. Richter
FEDERAL HIGHWAY ADMINISTRATION

CURBING

VERMONT AGENCY OF TRANSPORTATION

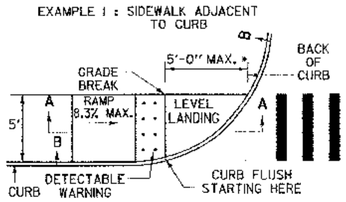
STANDARD C-10

Intersection Zone Details

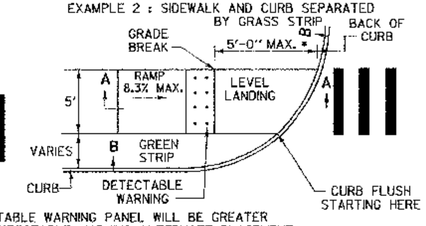
SIDEWALK RAMP TYPE 1

SINGLE WALK-STRAIGHT APPROACH TO PARALLEL RAMP.

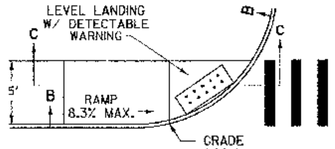
EXAMPLE 1 : SIDEWALK ADJACENT TO CURB



EXAMPLE 2 : SIDEWALK AND CURB SEPARATED BY GRASS STRIP

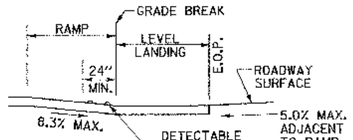


* IF EITHER CORNER OF THE DETECTABLE WARNING PANEL WILL BE GREATER THAN 5'-0" FROM BACK OF CURB, USE DETECTABLE WARNING ALTERNATE PLACEMENT

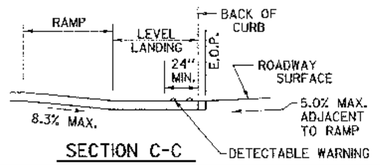


ALTERNATE PLACEMENT IS THE SAME WITH OR WITHOUT THE GRASS STRIP

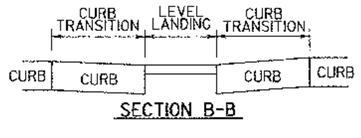
EXAMPLE 1 & 2 DETECTABLE WARNING ALTERNATE PLACEMENT



SECTION A-A



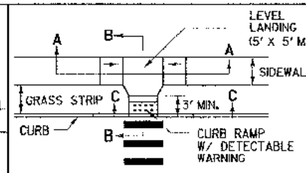
SECTION C-C

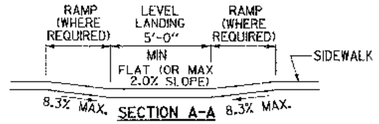


SECTION B-B

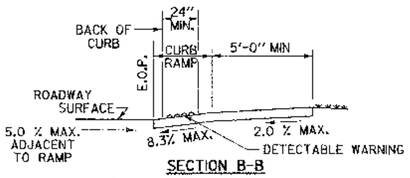
SIDEWALK RAMP TYPE 2

SINGLE PERPENDICULAR RAMP FROM LEVEL LANDING TANGENT SECTION

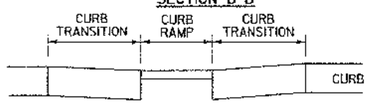




SECTION A-A



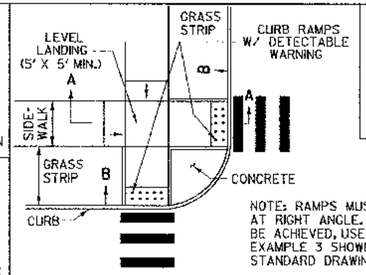
SECTION B-B



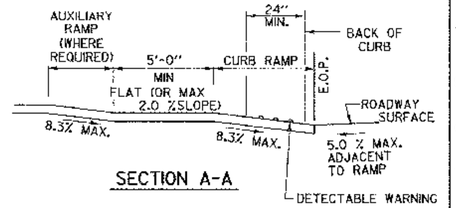
SECTION C-C

SIDEWALK RAMP TYPE 3

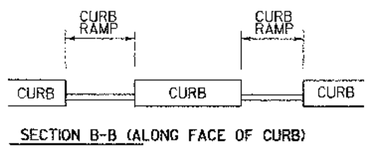
TWO PERPENDICULAR RAMPS FROM LEVEL LANDING



NOTE: RAMPS MUST INTERSECT CURB AT RIGHT ANGLE. IF THIS CANNOT BE ACHIEVED, USE RAMP TYPE 6, EXAMPLE 3 SHOWN ON VAOT STANDARD DRAWING C-3B.



SECTION A-A



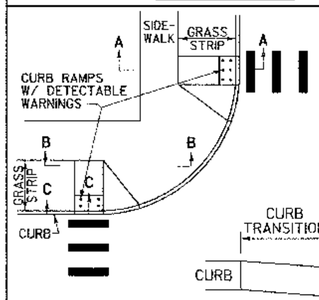
SECTION B-B (ALONG FACE OF CURB)

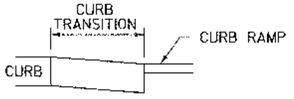
GENERAL NOTES:

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. (ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2%)
2. NOMINAL RAMP DIMENSIONS AND GRADES:
   RAMP WIDTH - 4'-0" MINIMUM
   RAMP SLOPE - 8.3% MAXIMUM
   FLARE SLOPE - 10% MAXIMUM
   RAMP CROSS SLOPE - 2.0% MAXIMUM
3. A LEVEL LANDING (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) SHALL BE PROVIDED AT THE TOP OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
4. LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
5. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES.
6. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
7. NO VERTICAL "LIP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
8. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
9. WHERE POSSIBLE, RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
10. SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
11. WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
12. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
13. WHEREVER FEASIBLE, TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
14. JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS, HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
15. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200 FEET.
16. E.O.P. = EDGE OF PAVEMENT
17. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THIS SHEET TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.

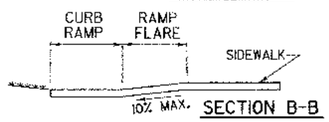
SIDEWALK RAMP TYPE 4

RAMP OFFSET FROM DIRECT LINE OF PEDESTRIAN TRAVEL

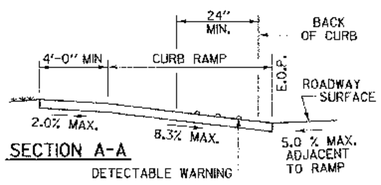




SECTION C-C

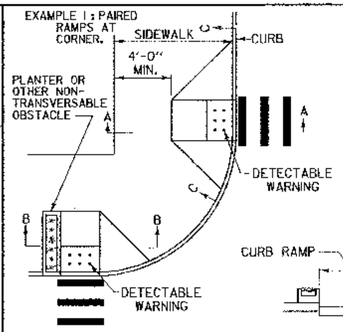


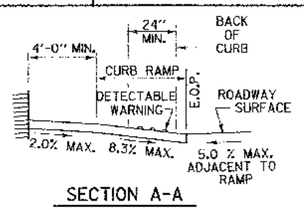
SECTION B-B



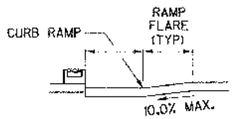
SECTION A-A

EXAMPLE 1 : PAIRED RAMPS AT CORNER.

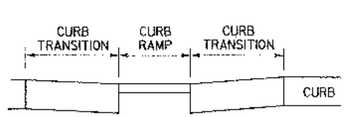




SECTION A-A

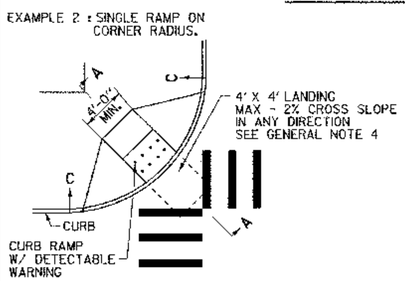


SECTION B-B

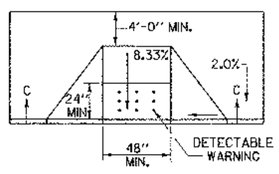


SECTION C-C

EXAMPLE 2 : SINGLE RAMP ON CORNER RADIUS.

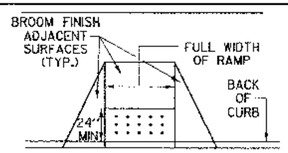


EXAMPLE 3 : RAMP ON TANGENT SECTION



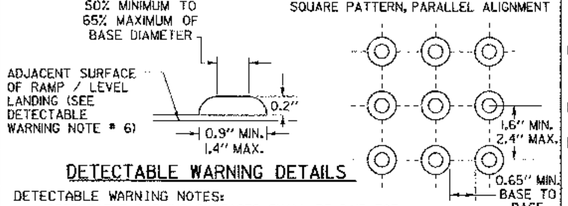
SIDEWALK RAMP TYPE 5

PERPENDICULAR RAMP IN URBAN SETTING - WIDE SIDEWALK



DETECTABLE WARNING DETAILS

DETECTABLE WARNING PLACEMENT



DETECTABLE WARNING DETAILS

DETECTABLE WARNING NOTES:

1. DETECTABLE WARNING SURFACES SHALL BE PAID FOR AS SPECIFIED IN THE CONTRACT.
2. CONCRETE ADJACENT TO ALL DETECTABLE WARNINGS SHALL HAVE A BROOM FINISH.
3. THE COLOR OF THE DETECTABLE WARNING SHALL PROVIDE A VISUAL CONTRAST TO THE SURROUNDING SURFACE AND SHALL BE AS SPECIFIED IN THE CONTRACT.
4. WHERE FEASIBLE, TRUNCATED DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF PEDESTRIAN TRAVEL.
5. WHERE A RAMP OR LEVEL LANDING MEETS A CURB RADIUS, ALIGN THE EDGE OF THE DETECTABLE WARNING AREA PARALLEL TO THE CURB TO THE MAXIMUM EXTENT FEASIBLE.
6. FOR SURFACE APPLIED TRUNCATED DOME PRODUCTS, A MAXIMUM 0.25" VERTICAL CHANGE IN ELEVATION IS ALLOWED. FOR CHANGES IN ELEVATION BETWEEN 0.25" AND 0.50", A BEVEL WITH A MAXIMUM 1:2 SLOPE IS REQUIRED. CHANGES IN ELEVATION GREATER THAN 0.50" MUST BE TREATED AS A RAMP- 8.3% MAXIMUM SLOPE.
7. IF ANY PORTION OF THE EDGE OF THE DETECTABLE WARNING CLOSEST TO THE CURB WILL BE GREATER THAN 5'-0" FROM THE BACK OF CURB, THEN THE PANEL(S) SHALL BE LOCATED ON THE LEVEL LANDING AS CLOSE TO PARALLEL TO THE CURB LINE AS POSSIBLE.

OTHER STANDARDS REQUIRED: C-2A, C-2B, C-3B AND C-10

REVISIONS AND CORRECTIONS

FEB. 2, 2004 - DATE OF ORIGINAL ISSUE
SEPT. 1, 2004 - MINOR REVISIONS TO COMPLY WITH ADAAG
MAR. 10, 2008 - MINOR REVISIONS TO COMPLY WITH ADA STANDARDS

APPROVED

LOCAL TRANSPORTATION FACILITIES PROGRAM MANAGER

DIRECTOR OF PROGRAM DEVELOPMENT

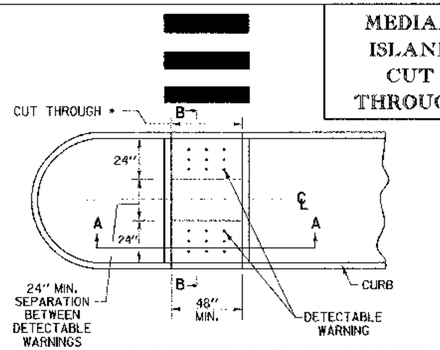
FEDERAL HIGHWAY ADMINISTRATION

SIDEWALK RAMPS

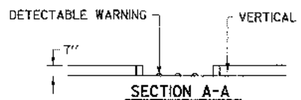
VERMONT AGENCY OF TRANSPORTATION

STANDARD C-3A

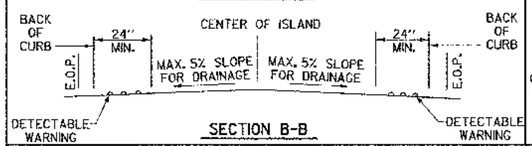
MEDIAN ISLAND CUT THROUGH



* IT IS PREFERRED TO PROVIDE A CUT THROUGH THAT IS THE SAME WIDTH AS THE APPROACHING CROSSWALK

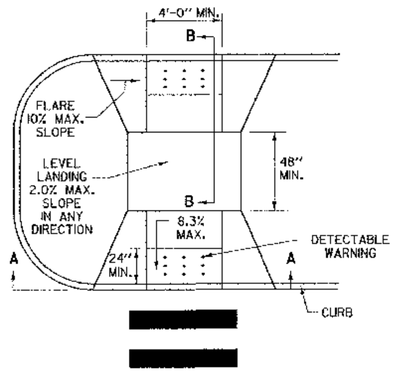


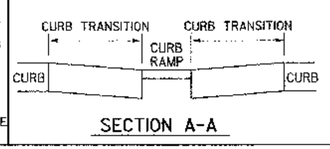
SECTION A-A



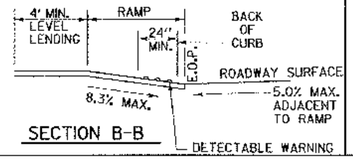
SECTION B-B

RAMPS AT WIDE MEDIAN ISLANDS



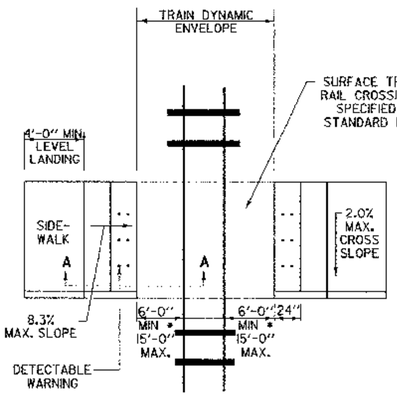


SECTION A-A

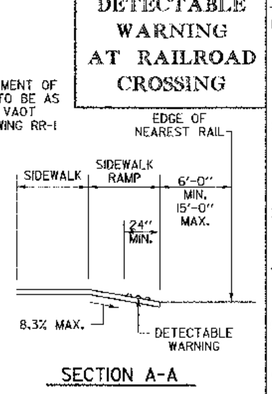


SECTION B-B

DETECTABLE WARNING AT RAILROAD CROSSING



* WHERE THIS DISTANCE CANNOT BE MET, A CLEARANCE DISTANCE BETWEEN THE TOE OF THE SIDEWALK RAMP AND THE FACE OF RAIL WILL BE UPON AGREEMENT BETWEEN THE REQUESTING PARTY AND THE RAILROAD. HOWEVER, THE DETECTABLE WARNING SHALL BE OUTSIDE THE EDGE OF THE DYNAMIC ENVELOPE.



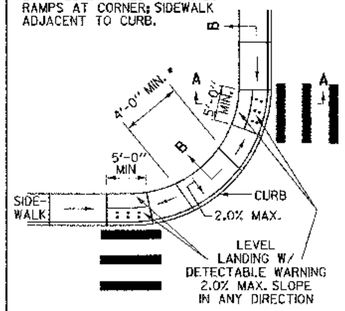
SECTION A-A

NOTE: WHERE A PEDESTRIAN GATE IS PROVIDED ACROSS THE SIDEWALK, THE NEAREST EDGE OF THE DETECTABLE WARNING SHALL BE A MINIMUM OF 2'-0" FROM THE FACE OF THE GATE ARM.

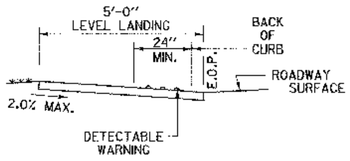
GENERAL NOTES:

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. (ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2%)
2. NOMINAL RAMP DIMENSIONS AND GRADES:
   RAMP WIDTH - 4'-0" MINIMUM
   RAMP SLOPE - 8.3% MAXIMUM
   FLARE SLOPE - 10% MAXIMUM
   RAMP CROSS SLOPE - 2.0% MAXIMUM
3. A LEVEL LANDING (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) SHALL BE PROVIDED AT THE TOP OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
4. LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
5. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES.
6. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
7. NO VERTICAL "LIP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
8. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
9. WHERE POSSIBLE, RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
10. SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
11. WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
12. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
13. WHEREVER FEASIBLE, TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
14. JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS, HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
15. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200 FEET.
16. E.O.P. = EDGE OF PAVEMENT
17. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THIS SHEET TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.

EXAMPLE 1: PAIRED PARALLEL RAMPS AT CORNER; SIDEWALK ADJACENT TO CURB.

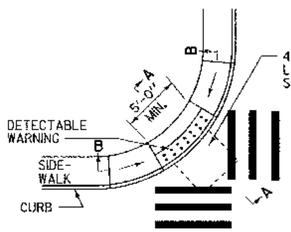


* WHERE A 4' MINIMUM SEPARATION BETWEEN RAMPS CANNOT BE ATTAINED, THE SIDEWALK SHOULD REMAIN AT THE SAME ELEVATION AS ADJOINING LEVEL LANDINGS.

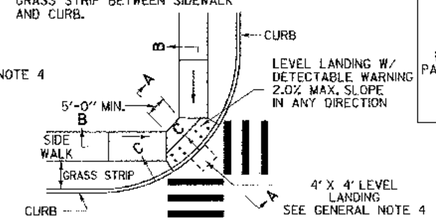


SECTION A-A

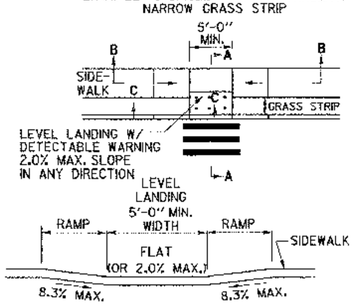
EXAMPLE 2: SINGLE RAMP ON CORNER RADIUS: SIDEWALK ADJACENT TO CURB.



EXAMPLE 3: SINGLE PARALLEL RAMP ON CORNER RADIUS; NARROW GRASS STRIP BETWEEN SIDEWALK AND CURB.

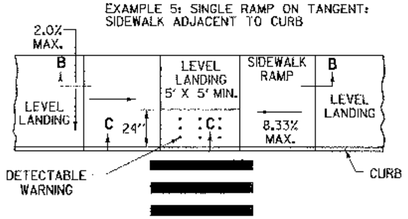


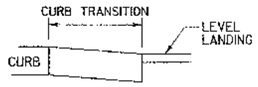
EXAMPLE 4: SINGLE RAMP ON TANGENT; NARROW GRASS STRIP



SECTION B-B

EXAMPLE 5: SINGLE RAMP ON TANGENT; SIDEWALK ADJACENT TO CURB



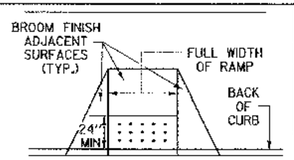


SECTION C-C

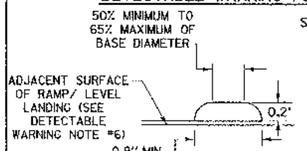
SIDEWALK RAMP TYPE 6

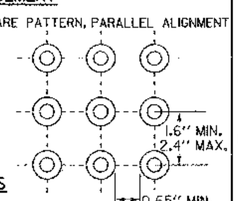
NARROW SIDEWALK PARALLEL RAMPS AND LEVEL LANDINGS WITHIN WALKWAY.

DETECTABLE WARNING DETAILS



DETECTABLE WARNING PLACEMENT





DETECTABLE WARNING DETAILS

DETECTABLE WARNING NOTES:

1. DETECTABLE WARNING SURFACES SHALL BE PAID FOR AS SPECIFIED IN THE CONTRACT.
2. CONCRETE ADJACENT TO ALL DETECTABLE WARNINGS SHALL HAVE A BROOM FINISH.
3. THE COLOR OF THE DETECTABLE WARNING SHALL PROVIDE A VISUAL CONTRAST TO THE SURROUNDING SURFACE AND SHALL BE AS SPECIFIED IN THE CONTRACT.
4. WHERE FEASIBLE, TRUNCATED DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF PEDESTRIAN TRAVEL.
5. WHERE A RAMP OR LEVEL LANDING MEETS A CURB RADIUS, ALIGN THE EDGE OF THE DETECTABLE WARNING AREA PARALLEL TO THE CURB TO THE MAXIMUM EXTENT FEASIBLE.
6. FOR SURFACE APPLIED TRUNCATED DOME PRODUCTS, A MAXIMUM 0.25" VERTICAL CHANGE IN ELEVATION IS ALLOWED. FOR CHANGES IN ELEVATION BETWEEN 0.25" AND 0.50", A BEVEL WITH A MAXIMUM ≒2 SLOPE IS REQUIRED. CHANGES IN ELEVATION GREATER THAN 0.50" MUST BE TREATED AS A RAMP- 8.3% MAXIMUM SLOPE.
7. IF ANY PORTION OF THE EDGE OF THE DETECTABLE WARNING CLOSEST TO THE CURB WILL BE GREATER THAN 5'-0" FROM THE BACK OF CURB, THEN THE PANEL(S) SHALL BE LOCATED ON THE LEVEL LANDING AS CLOSE TO PARALLEL TO THE CURB LINE AS POSSIBLE.

OTHER STANDARDS REQUIRED: C-2A, C-2B, C-3A, C-10 AND RR-1

REVISIONS AND CORRECTIONS

FEB. 2, 2004 - DATE OF ORIGINAL ISSUE
SEPT. 1, 2004 - MINOR REVISIONS TO COMPLY WITH ADAAG
MAR. 10, 2008 - MINOR REVISIONS TO COMPLY WITH ADA STANDARDS

APPROVED

LOCAL TRANSPORTATION FACILITIES PROGRAM MANAGER

DIRECTOR OF PROGRAM DEVELOPMENT

FEDERAL HIGHWAY ADMINISTRATION

SIDEWALK RAMPS AND MEDIAN ISLANDS

VERMONT AGENCY OF TRANSPORTATION

STANDARD C-3B

Utility Details

URD–GENERAL

ALL B.E.D. OWNED UNDERGROUND CABLE SHALL BE INSTALLED IN APPROVED CONDUIT. CUSTOMER OWNED CABLE SHALL ALSO BE INSTALLED IN APPROVED CONDUIT.

PRIMARY SYSTEMS WITH 3 OR MORE TRANSFORMERS SHALL BE DESIGNED AS LOOP FEED. THE LOOP FEED SYSTEM WILL NORMALLY HAVE THE OPEN POINT AT A PADMOUNT OR TERMINATING CABINET NEAR THE CENTER OF THE LOOP. ARRESTER(S) SHALL BE INSTALLED AT OPEN POINT PER STANDARD 0703. EACH SEGMENT OF THE LOOP SHALL BE ENCASED IN AN INDIVIDUAL CONDUIT.

CONDUIT SECTIONS BETWEEN TERMINATING POINTS, TRANSFORMERS OR TERMINATING CABINETS, SHALL NOT EXCEED 400 FEET.

SERVICE TO CUSTOMERS IN A RESIDENTIAL SUBDIVISION SHALL BE PROVIDED FROM THE FRONT PROPERTY LINE.

IN THOSE AREAS DESIGNATED FOR FUTURE 13.8 KV OPERATION, THE CONDUIT SIZES AND CABLE PULLING FORCES SHALL BE DESIGNED FOR 15 KV CABLE.

ALL UNDERGROUND SYSTEMS, INCLUDING UNDERGROUND SERVICES FROM OVERHEAD LINES, SHALL BE MAPPED SHOWING THE LOCATION OF ALL CONDUITS AND EQUIPMENT. LOCATIONS SHALL BE IN RELATION TO FIXED POINTS SUCH AS PROPERTY BOUNDARIES. VARIATIONS IN DESIGN SHALL BE REPORTED TO THE ENGINEERING DEPARTMENT FOR REVISION OF DRAWINGS.

B.E.D. RESPONSIBILITIES

A) OWNING AND MAINTAINING UNDERGROUND SYSTEM.
** B) PROVIDING AN ELECTRICAL DESIGN PLAN.
C) PROVIDING TO THE CUSTOMER AN ESTIMATE OF COST FOR B.E.D. WORK AND MATERIALS.
D) PROVIDING TRENCH, CONDUIT AND BACK FILL SPECIFICATIONS.
E) PROVIDING RISER POLE SPECIFICATIONS.
** F) PROVIDING AND INSTALLING PRIMARY CONDUCTORS AND TERMINATIONS.
G) PROVIDING EQUIPMENT FOUNDATION SPECIFICATIONS.
** H) INSPECTING CONDUIT AND FOUNDATION INSTALLATIONS.
I) PROVIDING METERING SPECIFICATIONS.
J) PROVIDING TRANSFORMERS.
** K) INSTALLING TRANSFORMERS.
L) PROVIDING AND INSTALLING TERMINATING CABINETS.
** M) PROVIDING AND INSTALLING GROUND GRIDS.
N) PROVIDING RED MARKING TAPE.
** O) CONNECTING SERVICES AT TRANSFORMER SECONDARY.

* B.E.D. WILL ASSUME OWNERSHIP AFTER SYSTEM IS ENERGIZED.
** AT CUSTOMER EXPENSE.

CUSTOMER RESPONSIBLITIES

A) PROVIDING A SURVEY PLOT PLAN, DETAILING SIGNIFICANT STRUCTURES AND OTHER UTILITIES.
B) PROVIDING DETAILED LOAD INFORMATION.
C) PROVIDING FOR NECESSARY EASEMENTS.
D) MAKING PAYMENT TO B.E.D. IN ADVANCE OF CONSTRUCTION.
E) PROVIDING 5 WORKING DAYS NOTICE TO B.E.D. PRIOR TO ANY REQUIRED INSTALLATIONS.
F) PROVIDING TRENCH AND BACKFILL UNDER INSPECTION OF B.E.D. PERSONNEL.
* G) INSTALLING RED MARKING TAPE.
* H) PROVIDING AND INSTALLING ALL CONDUITS COMPLETE WITH 500# RATED PULL STRING UNDER INSPECTION OF B.E.D. PERSONNEL.
* I) PROVIDING ALL PRIMARY CONDUIT RELATED EQUIPMENT ON RISER POLE INCLUDING SLIP JOINTS, SWEEPS AND CONDULATORS OR WEATHERHEADS TO B.E.D. STANDARDS.
* J) PROVIDING AND INSTALLING OF ALL CONCRETE FOUNDATIONS.
* K) PROVIDING AND INSTALLING RESIDENTIAL SERVICES.
L) PROVIDING AND INSTALLING COMMERCIAL AND INDUSTRIAL SERVICES.
M) NOTIFYING B.E.D. FOR INSPECTION PRIOR TO BACKFILLING CONDUIT INSTALLATION.
** N) PROVIDING AND INSTALLING FOUNDATIONS.

* B.E.D. WILL ASSUME OWNERSHIP AFTER SYSTEM IS ENERGIZED.
** AT CUSTOMER EXPENSE.

EXCAVATION AND CONDUIT

1.0 SCOPE:

THIS STANDARD DESCRIBES THE APPROVED METHOD OF INSTALLATION OF UNDERGROUND ELECTRICAL CONDUIT(S).

2.0 DUCT BANK SYSTEM:

2.1 ALL UNDERGROUND CABLES SHALL BE INSTALLED IN APPROVED CONDUIT. DIRECT BURY OF CONDUCTORS IS NOT ACCEPTED.

2.2 REFER TO ALL PROJECT DRAWINGS FOR ASSOCIATED WORK PRIOR TO LAYING DUCT RUNS.

2.3 THE DRAWINGS INDICATE APPROXIMATE LOCATIONS ONLY AND ARE NOT INTENDED TO ESTABLISH EXACT LOCATIONS. IN LAYING OUT THE WORK, IF THE CONTRACTOR ENCOUNTERS CONDITIONS WHICH INDICATE CONFLICT WITH THE INTENT OF THE PLANS THEY SHALL PROPERLY NOTIFY THE BURLINGTON ELECTRIC DEPARTMENT OF SUCH CONFLICT AND REQUEST ADJUSTMENT BEFORE PROCEEDING WITH THE WORK IN THE AFFECTED AREA.

3.0 EXCAVATION:

3.1 THE BOTTOM OF THE TRENCH SHALL BE UNDISTURBED OR TAMPED EARTH AND OF RELATIVELY SMOOTH ARCH. THE BOTTOM OF THE TRENCH WILL BE LINED WITH A MINIMUM OF 2 INCHES OF SAND.

3.2 ALL BACKFILL SHALL BE FREE OF ANY MATERIAL THAT MAY DAMAGE THE CONDUIT(S). A MINIMUM OF 6 INCHES OF SAND WILL COVER DUCT(S).

4.0 INSTALLATION PRACTICE:

4.1 A) CONDUIT SHALL BE INSTALLED TO THE DEPTH AND SEPARATION REQUIREMENTS AS SHOWN ON B.E.D. STANDARD 1604.

B) CONTRACTOR SHALL INSTALL B.E.D. FURNISHED PLASTIC WARNING TAPE, DESCRIBING BURIED ELECTRICAL LINE(S), ALONG ENTIRE LENGTH OF DUCT BANK. BURY AT DEPTH SHOWN ON B.E.D. STANDARD 1604.

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4.2 UNLESS OTHERWISE NOTED, MATERIAL USED FOR CONDUIT SEPARATION, SHALL BE CLEAN SAND.

4.3 A) CONDUIT SYSTEMS SHALL MAINTAIN A MINIMUM CLEARANCE FROM WATER, SEWER AND GAS LINES OF 5 FEET. WHERE THIS IS NOT FEASIBLE, A LESSER CLEARANCE MAY BE AUTHORIZED WITH WRITTEN APPROVAL OF ALL PARTIES INVOLVED. APPROVALS SHALL BE SUBMITTED TO B.E.D. BY THE REQUESTING PARTY.

B) CONDUIT SYSTEMS CROSSING WATER, SEWER OR GAS LINES WILL BE INSTALLED SO AS NOT TO PLACE ANY STRAIN ON THESE SERVICES.

4.4 A MAXIMUM OF 270 DEGREES WILL BE PERMITTED IN A SINGLE RUN OF CONDUIT. BENDS AND SWEEPS SHALL BE OF A 36" RADIUS. NO CHANGE OF DIRECTION GREATER THAN 5 DEGREES WILL BE PERMITTED BETWEEN LENGTHS OF RIGID CONDUIT WITHOUT THE USE OF A FORMED BEND. NO KINKS OR DISTORTIONS WILL BE ACCEPTED IN FORMED BENDS.

4.5 CONDUIT JOINTS SHALL BE MADE WITH APPROVED MATERIALS AND CONSTRUCTION PRACTICES.

4.6 SUPPORT BRACKETS ON RISER POLES WILL BE FURNISHED BY B.E.D. AND BILLED TO THE CUSTOMER. CONDUITS SHALL BE STUBBED UP A MINIMUM OF 6 INCHES FROM THE FACE OF THE POLE TO ALLOW FOR STAND-OFF BRACKETS. B.E.D. SHALL INSTALL, AT THE CUSTOMER'S EXPENSE, CUSTOMER FURNISHED CONDUIT FOR RISER TO OVERHEAD CONNECTION.

4.7 APPROVAL OF ROUTING, RISER LOCATION AND PLACEMENT OF OTHER ITEMS DEEMED NECESSARY SHALL BE OBTAINED FROM B.E.D. IN WRITING PRIOR TO CONSTRUCTION.

4.8 THE FOLLOWING SPACINGS SHALL BE MAINTAINED BETWEEN ADJACENT CONDUITS:
CONCRETE ENCASED – 2 INCHES
NON-CONCRETE ENCASED – 2 INCHES

4.9 DUCT SPACERS SHALL BE SPACED NOT MORE THAN 6 FEET APART ALONG STRAIGHT RUNS AND NOT MORE THAN 2 FEET FROM UTILITY HOLE WALLS OR LATERAL TAKEOFF ELBOWS. BASE SPACERS SHALL BE SET ON A FIRM BASE AND SUPPORTED TO PREVENT MOVEMENT DURING POUR.

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4.10 PVC DUCT JOINTS SHALL BE MADE WATERTIGHT BY THE USE OF A BRUSH APPLIED CEMENT AS RECOMMENDED BY THE MANUFACTURER.

4.11 WHEN FIELD BENDS ARE REQUIRED, THE USE OF HOT-BOX BENDERS AS RECOMMENDED BY THE DUCT MANUFACTURER IS REQUIRED. THE BENDS SHALL NOT CAUSE ANY CHANGE IN THE CONFIGURATION OR INTERNAL CROSS SECTION AREA OF THE DUCT.

5.0 CONDUIT:

5.1 ALL CONDUIT SHALL MEET NEMA STANDARD TC-2 (LATEST EDITION). ALL FITTINGS SHALL MEET NEMA STANDARD TC-3 (LATEST EDITION).

5.2 CONDUIT UNDER SIDEWALKS OR DRIVEWAYS SHALL BE SCHEDULE 80 PVC, UL LISTED NON-CONCRETE ENCASED OR SCHEDULE 40, UL LISTED, ENCASED IN CONCRETE. WHENEVER POSSIBLE, CONDUITS UNDER THE DRIVEWAY SHALL BE PVC SCHEDULE 80 (OR EQUIVALENT STRENGTH) AND BE INSTALLED USING DIRECTIONAL DRILLING OR CONDUIT MOLING. IF CONTRACTOR INSTALLS PVC CONDUITS SCHEDULE 80 (OR EQUIVALENT STRENGTH) UNDER SIDEWALKS OR DRIVEWAYS, CONTRACTOR MUST INSTALL THE PVC SCHEDULE 80 CONDUIT (OR EQUIVALENT STRENGTH) FROM THE UNDERGROUND BOX TO THE THE SIDEWALKS OR DRIVEWAYS.

5.3 CONDUIT UNDER LAWNS SHALL BE SCHEDULE 40, UL LISTED, UNLESS OTHERWISE NOTED.

5.4 CONDUIT UNDER PAVED AND NON-PAVED AREAS SUBJECT TO VEHICULAR TRAFFIC AND OTHER AREAS DESIGNATED BY B.E.D. SHALL BE MINIMUM SCHEDULE 40, UL LISTED, ENCASED IN CONCRETE.

5.5 RISER CONDUIT SHALL BE SCHEDULE 80 PVC UL LISTED FOR THE FIRST 10 FEET ABOVE GRADE. EXPANSION COUPLING SHALL BE INSTALLED AS SHOWN ON STANDARD 1616 & 1617.

5.6 SIZE AND QUANTITY OF CONDUITS SHALL BE SPECIFIED FOR EACH APPLICANT BY B.E.D.

5.7 A 1/4 INCH NYLON OR POLYPROPYLENE PULL LINE HAVING A 500 LB RATING SHALL BE INSTALLED AND SECURED IN EACH CONDUIT LINE.

5.8 PVC FITTINGS-COUPLINGS, ELBOWS, BELL ENDS, SPACERS AND ADAPTER FITTINGS SHALL BE THE PRODUCT OF THE SAME MANUFACTURER AS THE DUCT AND DESIGNATED FOR USE WITH THE TYPE DUCT INSTALLED, OR BE BY B.E.D.

5.9 CONDUIT TYPES WITHIN AN UNDERGROUND RUN WILL NOT BE MIXED.

6.0 ENCASEMENT AND ANCHORING:

6.1 WHERE ENCASEMENT IS SPECIFIED (SEE 5.3) CONCRETE SHALL BE OF A GRADE OF NO LESS THAN 3000 PSI COMPRESSIVE STRENGTH RATING. SLUMP SHALL BE 3 TO 5 INCHES AND THE CONCRETE SHALL BE WORKED IN TO COMPLETELY SURROUND THE CONDUITS.

6.2 CONCRETE ENCASEMENT SHALL EXTEND A MINIMUM OF 4 INCHES AWAY FROM THE OUTERMOST CONDUITS IN ALL DIRECTIONS.

6.3 WHEN IT IS EXPECTED THAT THERE WILL BE AN INTERVAL OF 4 HOURS OR LONGER BETWEEN POURS OF CONCRETE, REINFORCEMENT BARS SHALL BE INSTALLED ACROSS THE CONSTRUCTION JOINT. THE BARS SHALL BE SIZE #4 AND NOT LESS THAN 6 FEET IN LENGTH. ONE BAR SHALL BE INSTALLED IN EACH CORNER, AND BETWEEN DUCTS IN THE TOP AND BOTTOM OF EACH CONCRETE ENVELOPE, 2 INCHES FROM THE OUTSIDE SURFACE. EACH BAR SHALL EXTEND APPROXIMATELY EQUAL DISTANCES INTO THE TWO POURS OF CONCRETE.

6.4 DUCTS ENTERING UTILITY HOLES OR VAULT WALLS SHALL TERMINATE WITH BELL ENDS GROUTED INTO UTILITY HOLE WALL WITH MINIMUM 2500 LB PER SQUARE INCH CONCRETE. ENTRY INTO EXISTING UTILITY HOLES SHALL BE MADE BY USE OF CORE DRILL.

6.5 EXISTING CABLES AND EQUIPMENT IN UTILITY HOLES SHALL BE PROTECTED FROM POSSIBLE DAMAGE AND ALL FORMS AND OTHER MATERIALS COMPLETELY REMOVED WHEN INSTALLATION IS COMPLETE. ALL WORK IN EXISTING UTILITY HOLES SHALL BE COORDINATED AND APPROVED BY BURLINGTON ELECTRIC DEPARTMENT.

6.6 PRIOR TO POURING CONCRETE, THE DUCT SHALL BE SECURELY ANCHORED TO PREVENT MOVEMENT DURING THE POUR. ANCHORS SHALL BE WITHIN 2 FEET AND ON EACH SIDE OF JOINT, AT EACH END OF BEND, AND A MAXIMUM DISTANCE OF 10 FEET BETWEEN ANCHORS.

6.7 THE CONTRACTOR SHALL, BEFORE PLACING FORMS OR DUCT LINES, CONFIRM THE SURFACE ON WHICH CONCRETE IS TO BE POURED IS UNDISTURBED ORIGINAL GROUND OR FIRMLY COMPACTED EARTH FREE FROM VOIDS, ROCK OR RUBBLE.

6.8 FORMS FOR DUCT SECTIONS SHALL BE PROVIDED IN ALL CASES WITH B.E.D. APPROVAL WHEN THE SOIL CONDITIONS ARE SUCH THAT THE TRENCH CAN BE EXCAVATED TO THE REQUIRED WIDTH AND DEPTH, LEAVING FIRM AND VERTICAL WALLS WHICH MAY SUITABLY EMPLOYED AS A SUBSTITUTE FOR FABRICATED FORMS.

6.9 DUCT ENVELOPE SHOULD BE SQUARE OR RECTANGULAR IN CROSS SECTION AND SHALL PROVIDE FOR 4 INCHES OF CONCRETE OVER THE OUTSIDE DUCTS.

6.10 WHERE LATERAL TAKEOFFS OF DUCTS FROM CONCRETE ENVELOPE ARE MADE, THE FORMS SHALL BE SLOTTED FOR THE INSTALLATION OF THE ELBOW WITH SLOTTED SHEET METAL FORM PLACED OVER ELBOW TO RETAIN CONCRETE DURING POUR. LATERAL TAKEOFF CONDUITS SHALL BE RIGIDLY SUPPORTED DURING POUR AND CURE.

7.0 INSPECTIONS:

7.1 ALL WORK IS SUBJECT TO INSPECTION AND APPROVAL OF B.E.D.. NON-COMPLYING CONSTRUCTION WILL BE BROUGHT INTO COMPLIANCE AS DIRECTED BY B.E.D. AT THE EXPENSE OF THE OWNER. IT IS THE RESPONSIBILITY OF THE INSTALLER TO NOTIFY B.E.D. PRIOR TO BACKFILLING. IF NOTICE IS NOT GIVEN, B.E.D. SHALL HAVE THE RIGHT TO REQUIRE ANY OR ALL WORK TO BE EXPOSED FOR VISUAL INSPECTION AT THE EXPENSE OF THE INSTALLER.

8.0 AS BUILT DRAWINGS

8.1 CONTRACTOR SHALL MAINTAIN AT THE JOB SITE A SEPARATE SET OF PLANS WHICH SHALL BE USED FOR AS BUILT RECORD ONLY.

8.2 A SET OF AS BUILT RECORDS SHALL BE GIVEN TO B.E.D. UPON COMPLETION OF THE JOB.

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CONDUIT USAGE CHART

LOCATION	MINIMUM ACCEPTABLE CONDUIT
LAWNS	SCHEDULE 40 PVC, UL LISTED, NON-CONCRETE ENCASED OR SCHEDULE 80 PVC, UL LISTED, NON-CONCRETE ENCASED
SIDEWALKS	SCHEDULE 80 PVC, UL LISTED, NON-CONCRETE ENCASED (OR EQUIVALENT STRENGTH) OR SCHEDULE 40 PVC, UL LISTED, ENCASED IN CONCRETE
DRIVEWAYS	SCHEDULE 80, UL LISTED, PVC NON-CONCRETE ENCASED OR EQUIVALENT STRENGTH USING DIRECTIONAL BORING WHENEVER POSSIBLE OR SCHEDULE 40 PVC, UL LISTED, ENCASED IN CONCRETE
PAVED AND NON PAVED AREAS SUBJECT TO VEHICULAR TRAFFIC	SCHEDULE 40 PVC, UL LISTED, ENCASED IN CONCRETE
RISERS, FIRST 10 (TEN) FEET ABOVE GRADE	SCHEDULE 80 PVC, UL LISTED
RISERS, AFTER FIRST 10 (TEN) FEET ABOVE GRADE	SCHEDULE 40 PVC, UL LISTED

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
CONDUIT IN TRENCH	
DATE: 05/14/12	DWG. NO.: 160301
DWN BY: RG	APP. BY:
SCALE: NONE	SHEET 1 OF 3

CABLES	2 1/2"	4"	5"	6"
1 – #2 PRIMARY, 15 KV	X			
3 – #2 PRIMARY, 15 KV		X		
1 – 4/0 PRIMARY 15 KV		X		
3 – 4/0 PRIMARY 15 KV		X		
3 – 350 PRIMARY, 15 KV			X	
1 – 750 MCM PRIMARY, 15 KV		X		
1 – 1000 MCM PRIMARY, 15 KV		X		
1/0 TRIPLEX SERVICE	X			
1/0 TRIPLEX SECONDARY		X		
1/0 QUADRAPLEX SERVICE	X			
4/0 TRIPLEX SERVICE	X			
4/0 TRIPLEX SECONDARY		X		
4/0 QUADRAPLEX SECONDARY OR SERVICE		X		
350 TRIPLEX SERVICE		X		
350 TRIPLEX SECONDARY		X		
350 QUADRAPLEX SECONDARY OR SERVICE		X		
500 TRIPLEX SECONDARY		X		
3–750 MCM PRIMARY 15 KV OR 35 KV				X
3–1000 MCM PRIMARY 15 KV				X

ALL BENDS SHALL BE MINIMUM 3 FOOT RADIUS.

BURLINGTON ELECTRIC DEPT.

DISTRIBUTION STANDARDS

CONDUIT IN TRENCH

DATE: 05/14/12	DWG. NO.: 160302
DWN BY: RG	APP. BY:
SCALE: NONE	SHEET 2 OF 3

CONDUITS SHALL BE CLEARED FREE OF ALL DEBRIS AND OBSTRUCTIONS PRIOR TO CABLE INSTALLATION. NEW CONDUIT INSTALLATIONS SHALL BE COMPLETE WITH PULL STRINGS INSTALLED PER STANDARD 1602. THE CABLE END SHALL BE SEALED WITH AN APPROVED END CAP DURING CABLE INSTALLATIONS. CABLES SHALL FEED INTO THE CONDUIT USING A SUITABLE GUIDE OR FEED TUBE. CABLES SHALL BE LIBERALLY COATED WITH APPROVED CABLE LUBRICANT CONTINUOUSLY AS CABLE IS FED INTO CONDUIT.

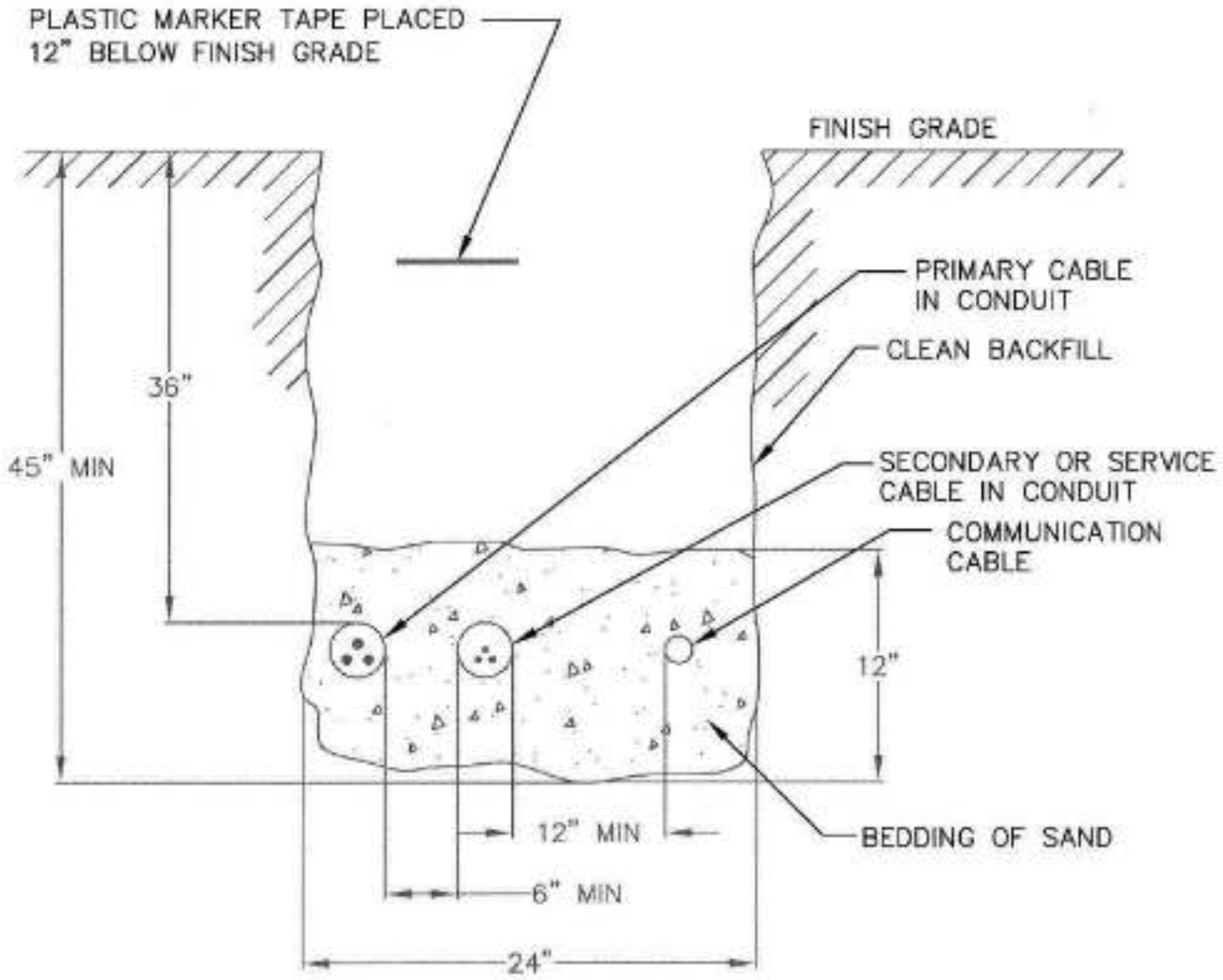
UL LISTED, SCHEDULE 40 AND SCHEDULE 80 PVC ARE NOT TO BE JOINED OR MIXED IN A CONDUIT RUN WITHIN THE TRENCH. THE CONDUITS HAVE THE SAME OUTSIDE DIAMETERS; HOWEVER, THE INSIDE DIAMETERS DIFFER. IF SCHEDULE 80 IS GOING TO BE USED, IT MIGHT BE MORE ECONOMICAL TO RUN IT THE ENTIRE DISTANCE.

ALL CONDUCTORS SHALL BE TAGGED IN TRANSFORMERS, UTILITY HOLES AND TERMINATING CABINETS DESIGNATING CABLE ORIGIN AND DESTINATION.

DAMAGED CABLE WITHIN THE CONDUIT SHALL BE REPLACED WITH NEW CABLE. SPLICED CABLE SHALL NOT BE INSTALLED IN CONDUIT.

FAULT INDICATORS SHALL NORMALLY BE USED ON ALL PRIMARY CABLES ON THE LOAD SIDE OF TERMINATING CABINETS OR LOOP FEED PADMOUNT TRANSFORMERS. SEE SECTION 1700 IN BED STANDARDS FOR FURTHER INFORMATION.

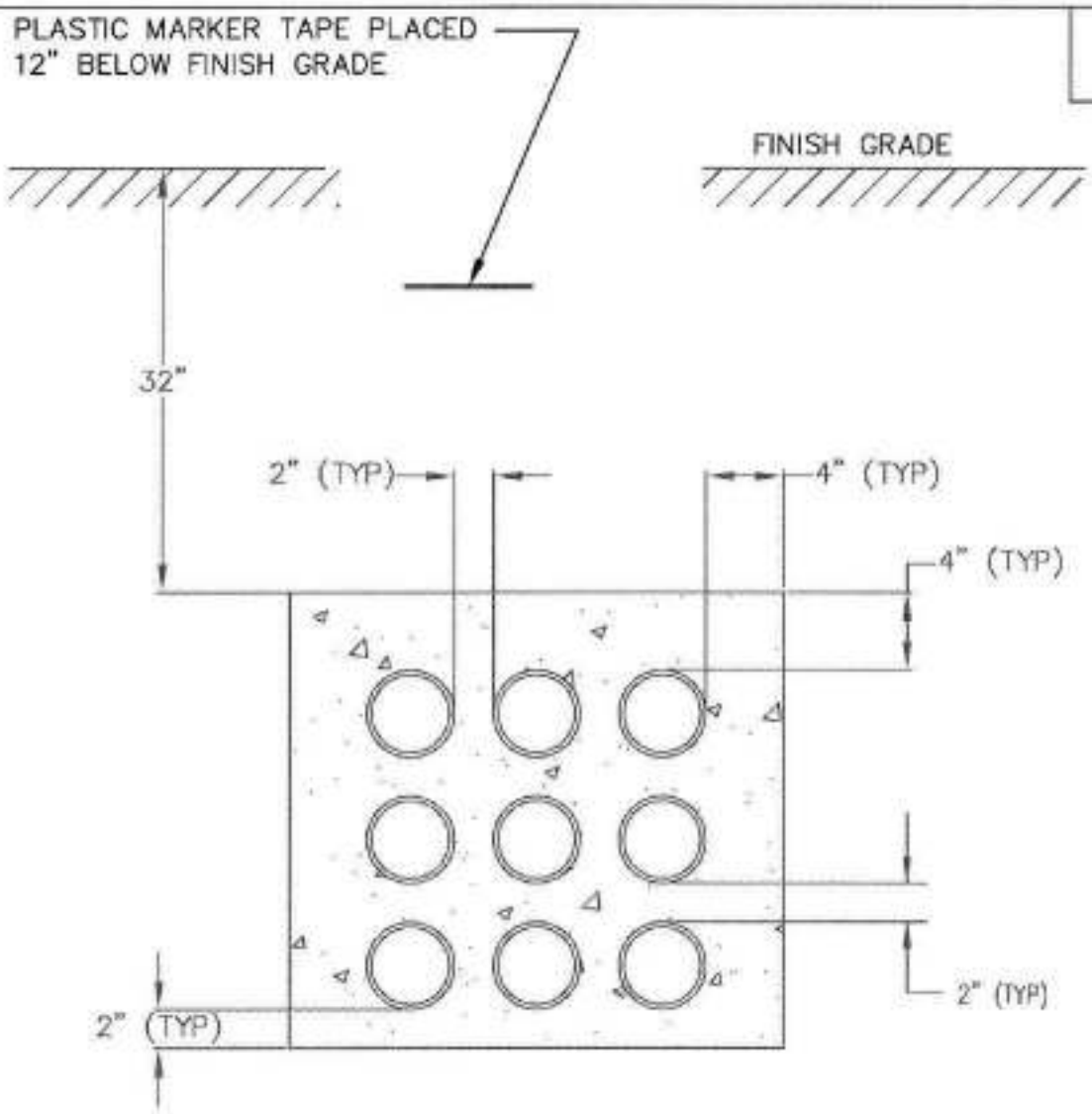
BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
CONDUIT IN TRENCH	
DATE: 03/24/14	DWG. NO.: 160303
DWN BY: RG	APP. BY:
SCALE: NONE	SHEET 3 OF 3



NOTES:

1. IN SOME CASES, PRIMARY AND SECONDARY (600V) CABLE DEPTHS MAY BE REDUCED IF ENCASED IN 6" OF CONCRETE, GRADE OF NO LESS THAN 4,000 PSI STRENGTH.
2. WHERE LEDGE IS ENCOUNTERED, MINIMUM DEPTHS MAY BE REDUCED TO 18" FOR PRIMARY AND SECONDARY CABLE ONLY WHEN CABLE IS INSTALLED IN CONDUIT ENCASED IN 6" OF CONCRETE, GRADE OF NO LESS THAN 5,000 PSI STRENGTH.
3. MOUNDING THE TRENCH TO GAIN SUITABLE CABLE DEPTH IS NOT PERMITTED.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
TYPICAL TRENCH	
DATE: 03/10/11	DWG. NO.: 160401
DWN BY: RG	APP. BY: MK
SCALE: NONE	SHEET 1 OF 2

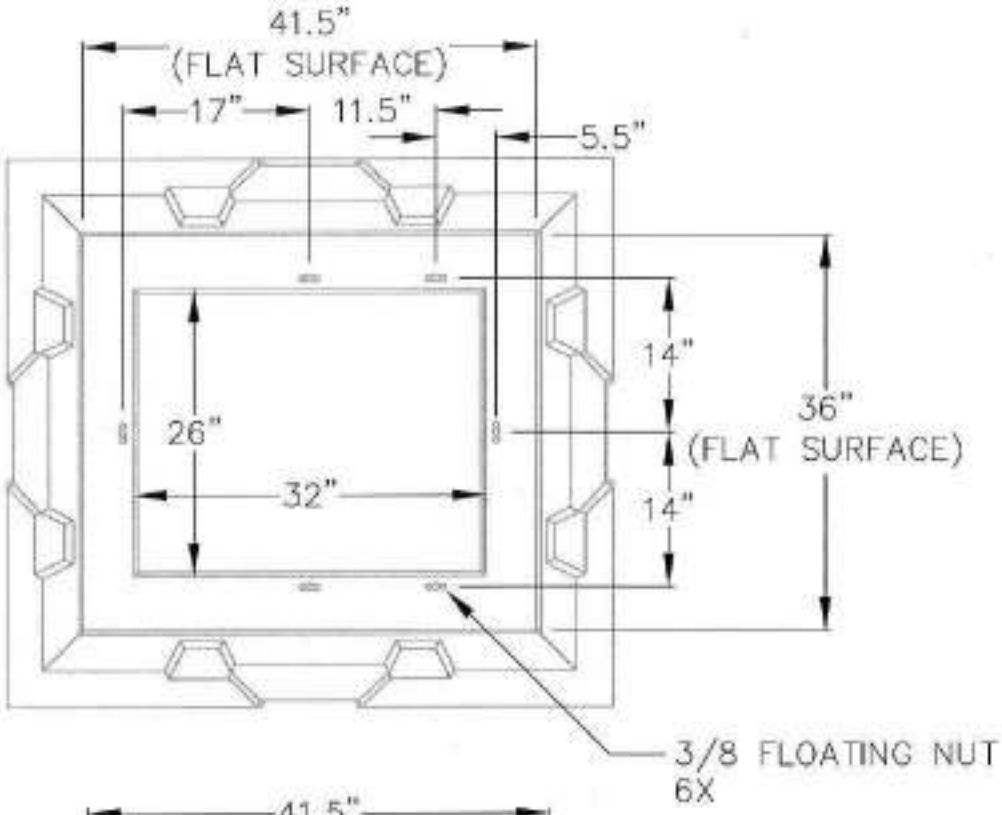


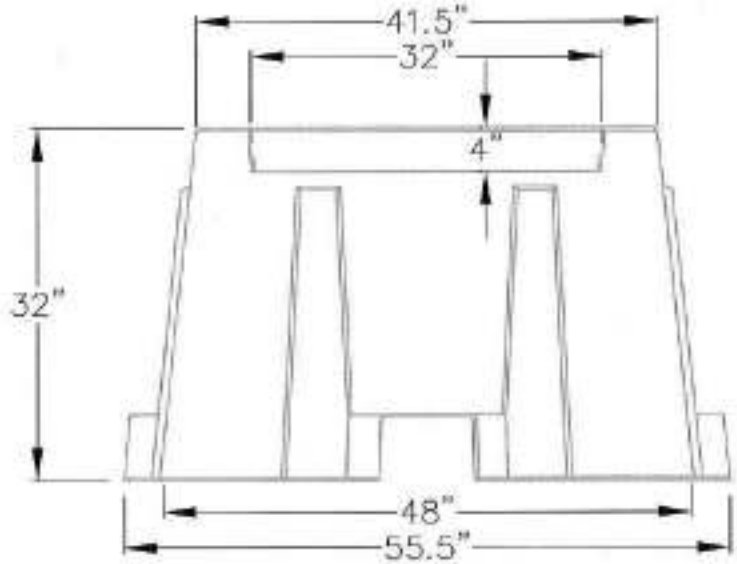
TYPICAL CONDUIT BANK CONSTRUCTION, CONCRETE ENCASED

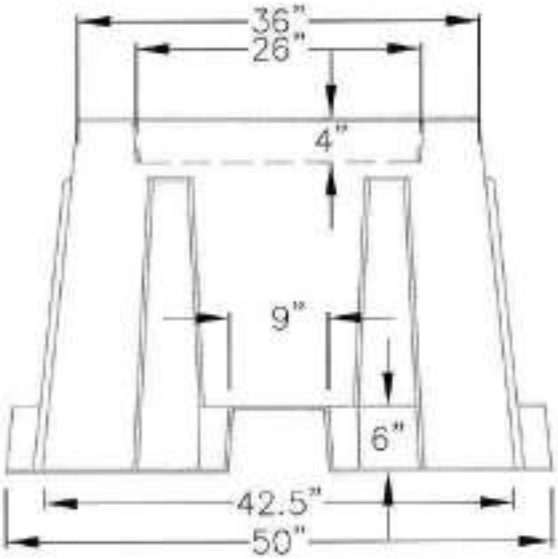
NOTES:
1. ALL BED DUCTBANKS SHALL HAVE A TWO INCH (2") SPACING BETWEEN CONDUITS.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
TYPICAL TRENCH	
DATE: 03/10/11	DWG. NO.: 160402
DWN BY: RG	APP. BY: MK
SCALE: NONE	SHEET 2 OF 2

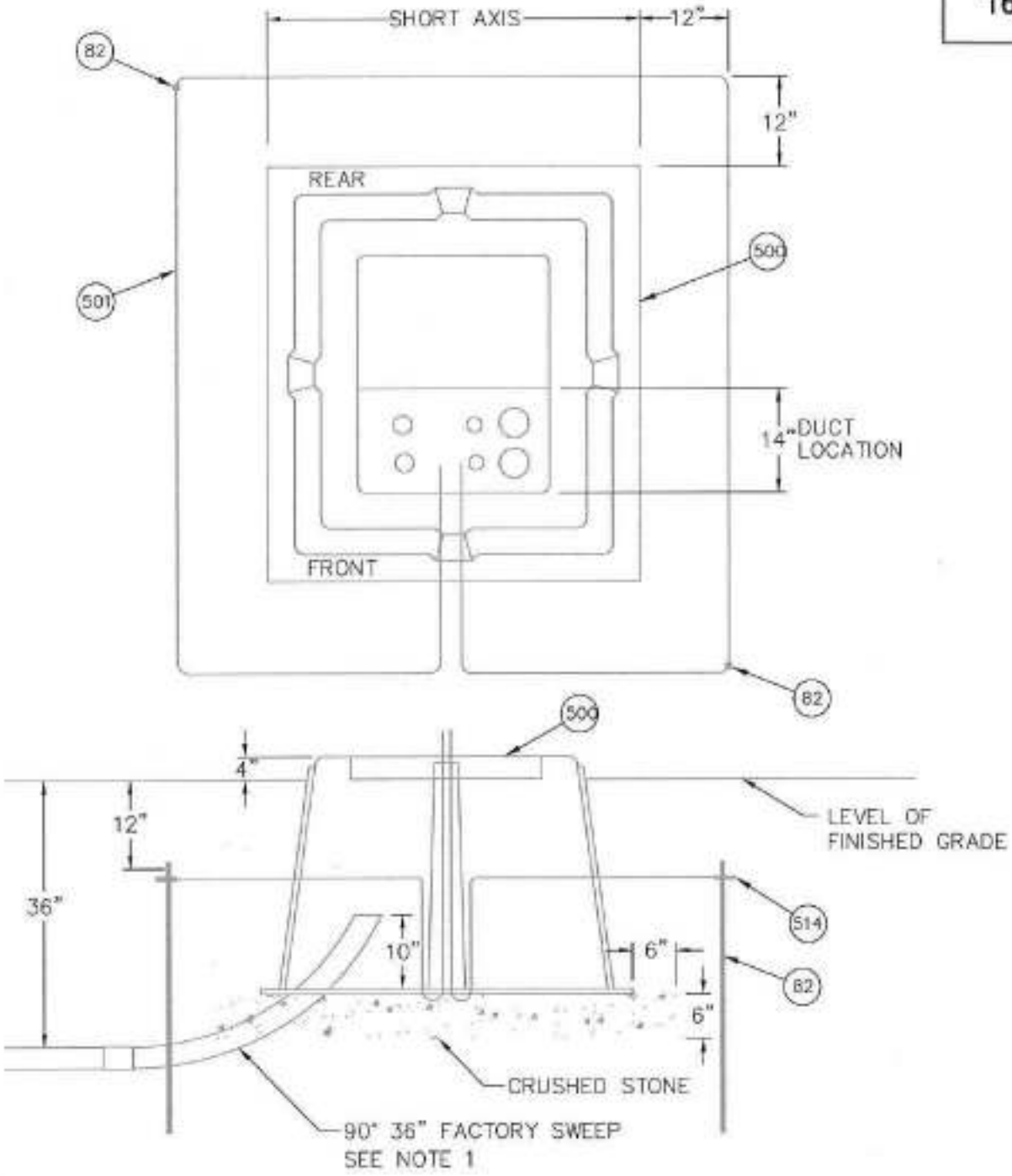
1605







BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
FIBERGLASS BOX SINGLE Ø TRANSFORMER SPECS & INSTALLATION	
DATE: 09/06/13	DWG. NO.: 160501
DWN BY: RG	APP. BY:
SCALE: NTS	SHEET 1 OF 3



NOTES:

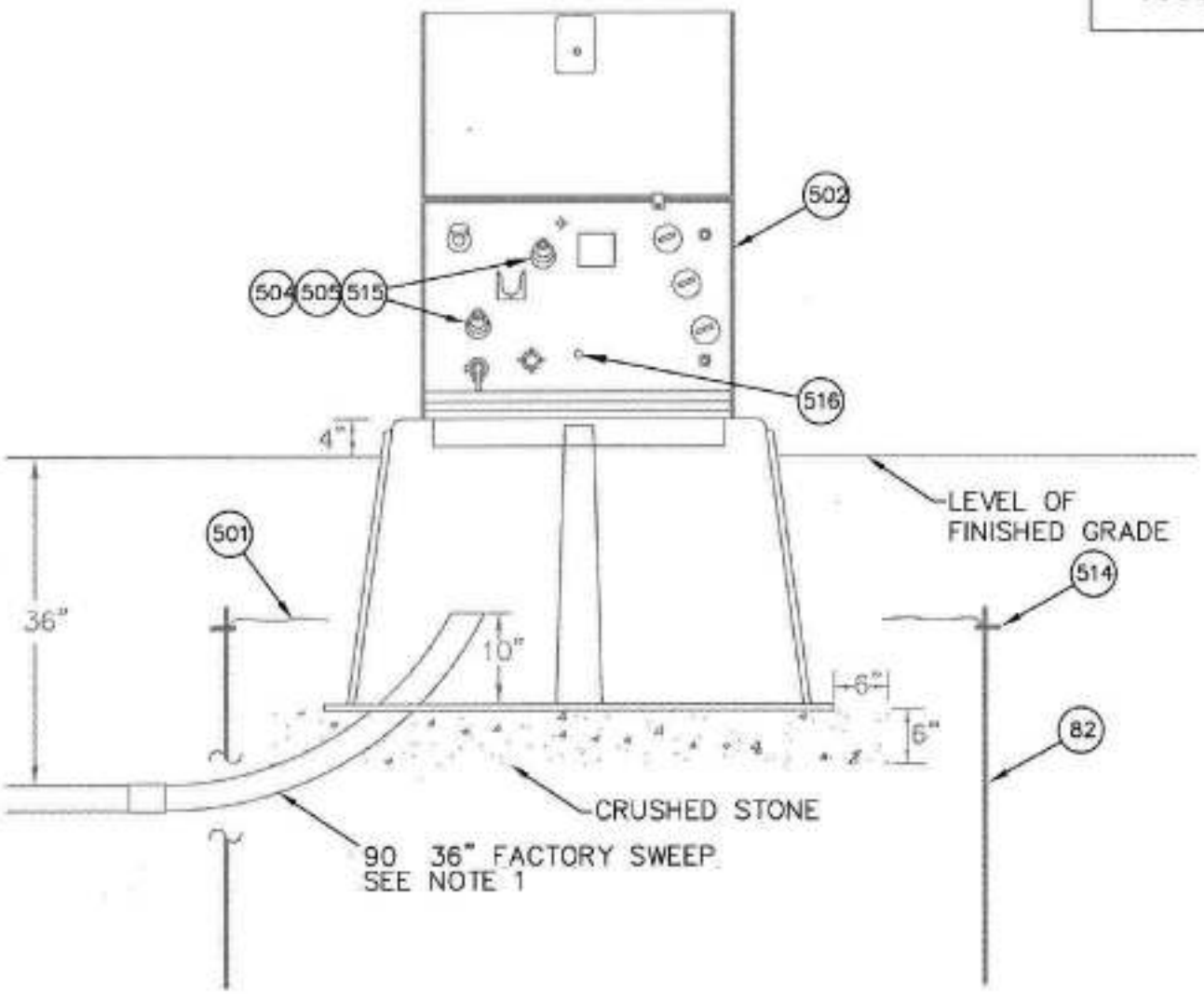
1. 90° 36" RADIUS BEND MUST BE USED.
2. A MINIMUM OF 6" CRUSHED STONE WILL BE PLACED UNDER BOX AND EXTEND 6" BEYOND THE PERIMETER OF BOX.
3. FINISHED GRADE SHALL BE A MINIMUM OF 4" BELOW TOP OF BOX.
4. BOXES USED FOR TRANSFORMERS OR TERMINATING POINTS SHALL HAVE A GROUND GRID INSTALLED.
5. CONDUITS WILL ENTER BOX IN THE FRONT 14 INCHES OF CLEAR OPENING.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
FIBERGLASS BOX SINGLE Ø TRANSFORMER SPECS & INSTALLATION	
DATE: 09/06/13	DWG. NO.: 160502
DWN BY: RG	APP. BY:
SCALE: 1" = 16"	SHEET 2 OF 3

MATERIAL LIST

ITEM	QUANTITY	DESCRIPTION
82	2	GROUND ROD
500	1	FIBERGLASS BOX
501	40'	1/0 BARE STRANDED COPPER WIRE
514	2	GROUND ROD CONNECTOR

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
FIBERGLASS BOX SINGLE Ø TRANSFORMER SPECS & INSTALLATION	
DATE: 09/06/13	DWG. NO.: 160503
DWN BY: RG	APP. BY:
SCALE: NONE	SHEET 3 OF 3



NOTES:

1. 90° 36" RADIUS BEND MUST BE USED.
2. A MINIMUM OF 6" CRUSHED STONE WILL BE PLACED UNDER BOX AND EXTEND 6" BEYOND THE PERIMETER OF BOX.
3. FINISHED GRADE SHALL BE A MINIMUM OF 4" BELOW TOP OF BOX.
4. BOXES USED FOR TRANSFORMERS OR TERMINATING POINTS SHALL HAVE A GROUND GRID INSTALLED.
5. CONDUITS WILL ENTER BOX IN THE FRONT 14 INCHES OF CLEAR OPENING.
6. INSTALL ARRESTER PER STANDARD 0703.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
SINGLE Ø PADMOUNTED TRANSFORMER, DEAD FRONT	
DATE: 03/17/11	DWG. NO.: 160601
DWN BY: RG	APP. BY:
SCALE: 1" = 16"	SHEET 1 OF 2

MATERIAL LIST

ITEM	QUANTITY	DESCRIPTION
82	2	GROUND ROD
501	40'	1/0 BARE STRANDED COPPER WIRE
502	1	PAD MOUNT TRANSFORMER – SINGLE ø
504	1	200 AMP LOADBREAK ELBOW
505	1	COLD SHRINK SEALING SLEEVE. #2–4/0
514	2	GROUND ROD CONNECTOR
515	2	SWITCH MODULE
516	1	GROUND LUG
	AS REQUIRED	SECONDARY CONNECTORS

OPTIONAL EQUIPMENT

504	AS REQUIRED	200 AMP LOADBREAK ELBOW
505	AS REQUIRED	COLD SHRINK SEALING SLEEVE, #2–4/0
507	AS REQUIRED	ELBOW ARRESTER
508	AS REQUIRED	BUSHING ARRESTER
509	AS REQUIRED	PARKING STAND ARRESTER
510	AS REQUIRED	INSULATED PARKING BUSHING
511	AS REQUIRED	INSULATED CAP
512	AS REQUIRED	LOADBREAK FEED–THRU INSERT

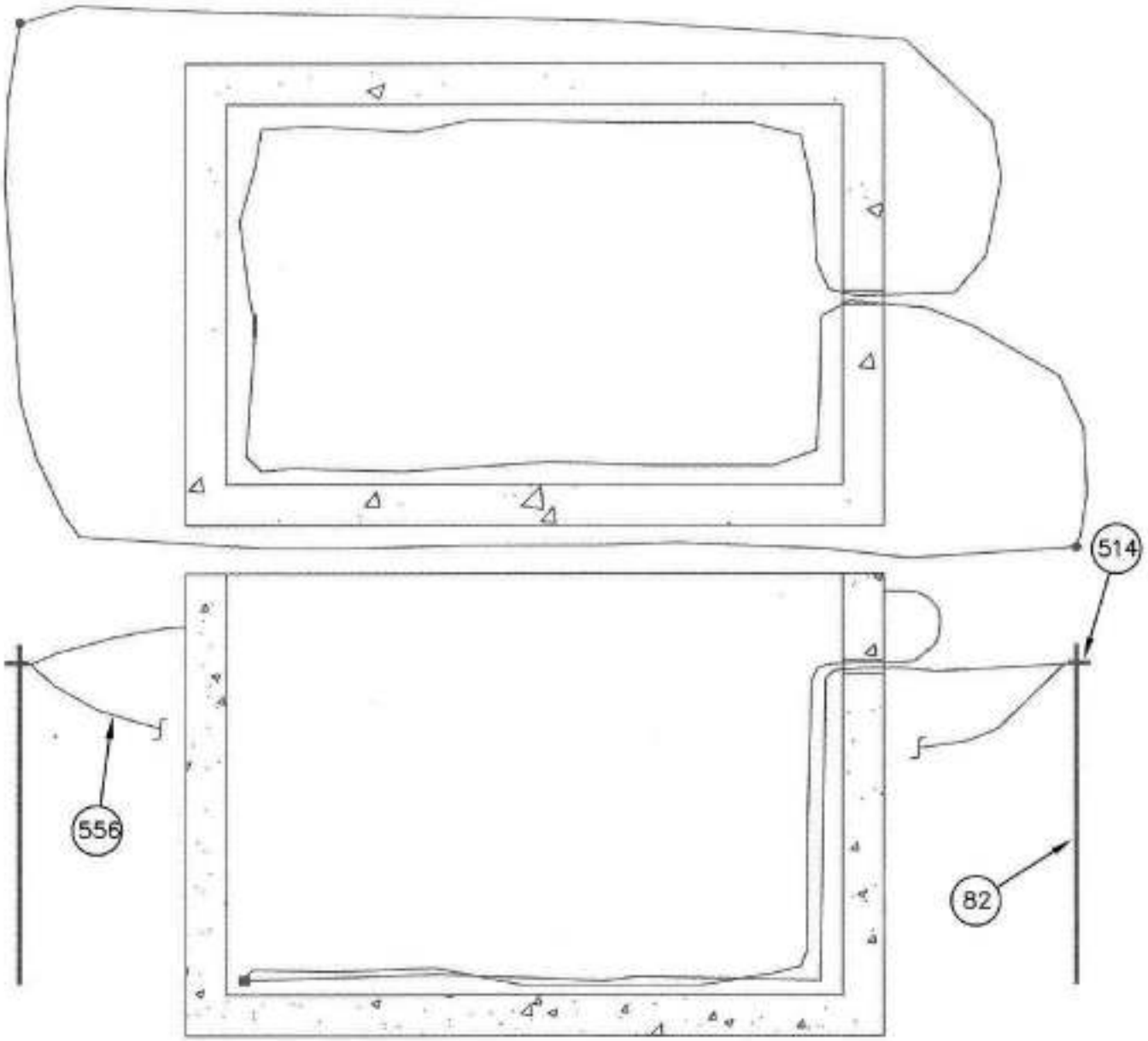
BURLINGTON ELECTRIC DEPT.

DISTRIBUTION STANDARDS

SINGLE Ø PADMOUNTED TRANSFORMER, DEAD FRONT

DATE: 03/17/11	DWG. NO.: 160602
DWN BY: RG	APP. BY: RK
SCALE: NONE	SHEET 2 OF 2

1609



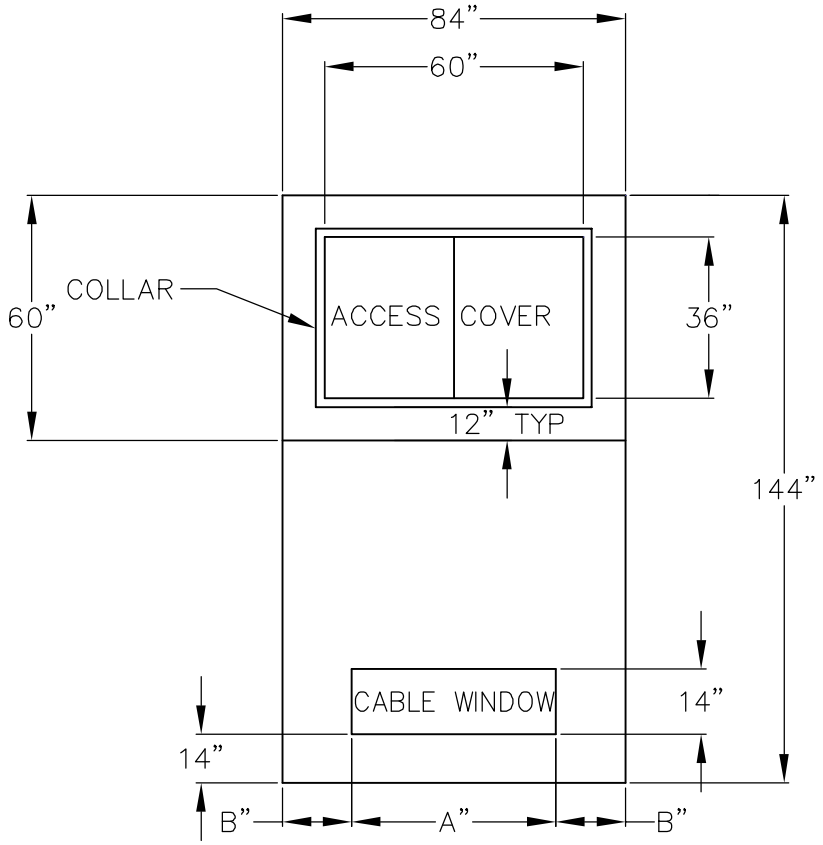
NOTE:
1. GROUND LOOP MUST BE CONTINUOUS.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
UTILITY HOLE GROUNDING	
DATE: 03/10/11	DWG. NO.: 160901
DWN BY: CC	APP. BY: MK
SCALE: NONE	SHEET 1 OF 2

MATERIAL LIST

ITEM	QUANTITY	DESCRIPTION
82	2	GROUND ROD
514	2	GROUND ROD CONNECTOR
556	AS REQUIRED	4/0 BARE STRANDED COPPER WIRE

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
UTILITY HOLE GROUNDING	
DATE: 03/10/11	DWG. NO.: 160902
DWN BY: CC	APP. BY: MV
SCALE: NONE	SHEET 2 OF 2



COVER DETAIL

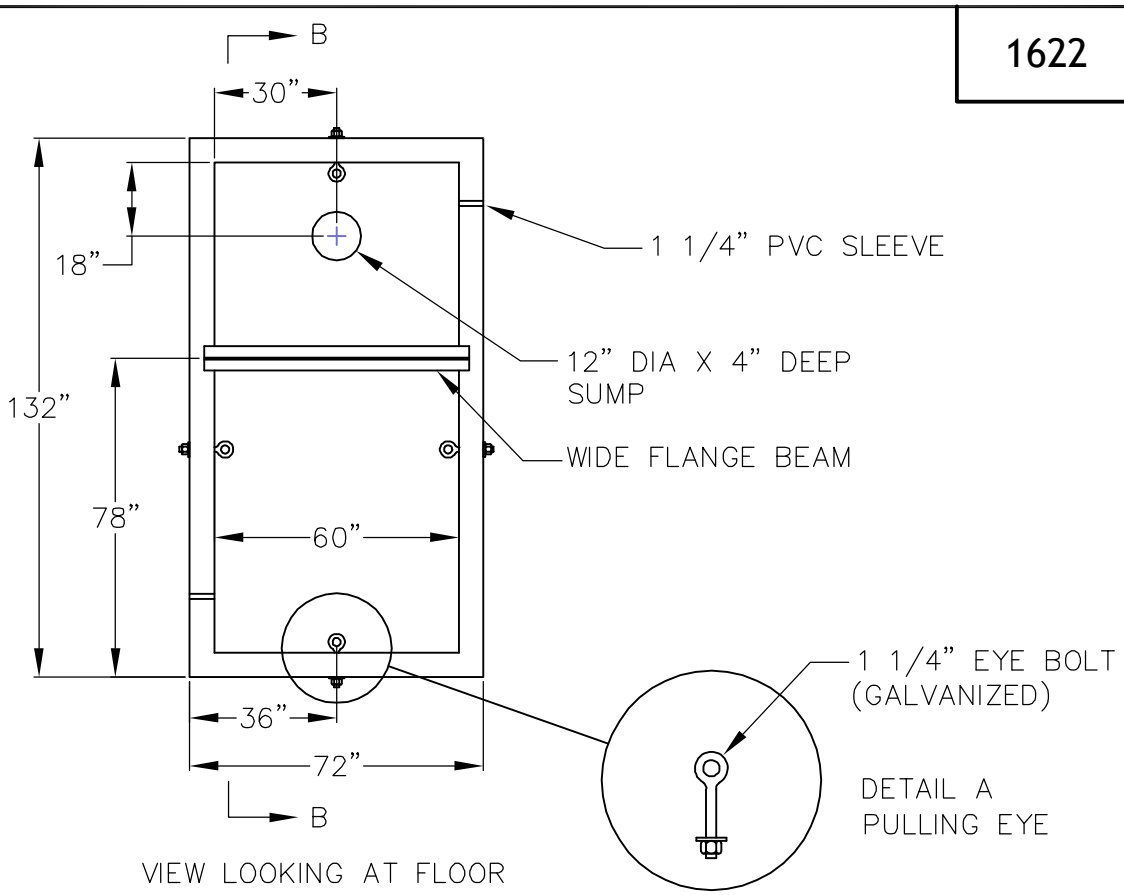
WINDOW DIMENSION TABLE

	KVA	
	75 500	750 2500
A	48"	55"
B	18"	14.5"

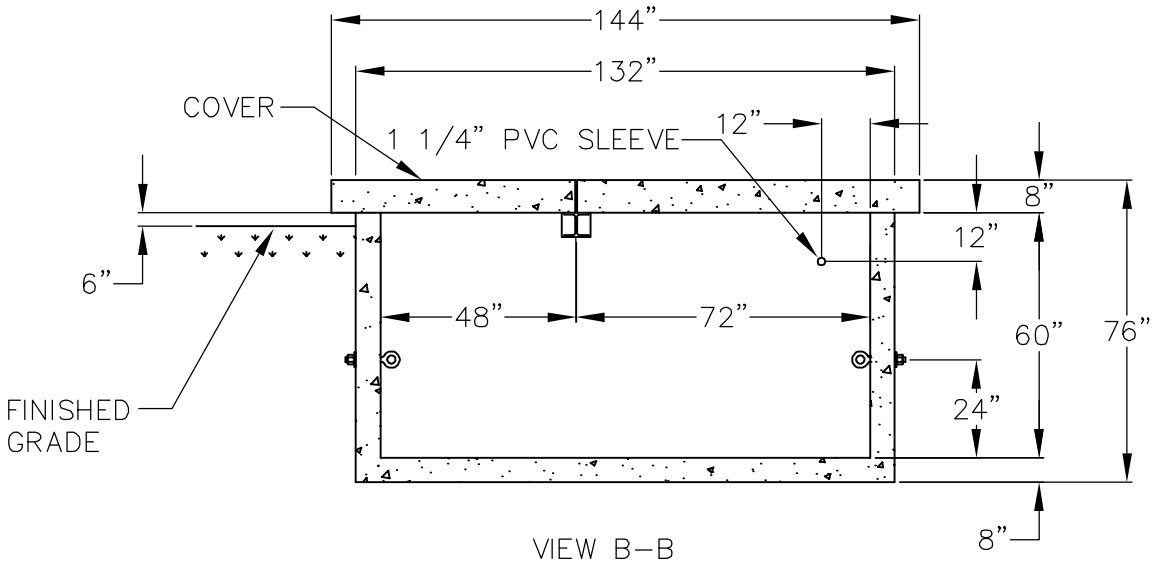
NOTES:

1. PAD AND WELL TO BE CONSTRUCTED TO MEET REQUIREMENTS OF LOADING SPECIFICATION H-20 AND SUPPORT A TRANSFORMER WEIGHT OF 16,000 LBS.
2. SECONDARY CONDUIT QUANTITY AND SIZE TO BE DETERMINED BY CUSTOMER BASED ON B.E.D. STANDARD 1603.
3. PRIMARY CONDUIT QUANTITY AND SIZE TO BE DETERMINED BY B.E.D.
4. CONCRETE PAD SHALL HAVE A 3/4" CHAMFER ON ALL SIDES.
5. ACCESS COVER (36" X 60"), MEETING ANSI/SCTE 77-2007 TIER 22, TO BE PROVIDED BY B.E.D.
6. STONE BASE FOR VAULT TO BE 12" OF 3/4" CRUSHED STONE.
7. FINAL VAULT DRAWINGS MUST BE APPROVED BY BED ENGINEERING.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
THREE Ø TRANSFORMER CONCRETE PAD	
DATE: 10/16/14	DWG. NO.: 162201
DWN BY: RG	APP. BY:
NONE	1 2



VIEW LOOKING AT FLOOR



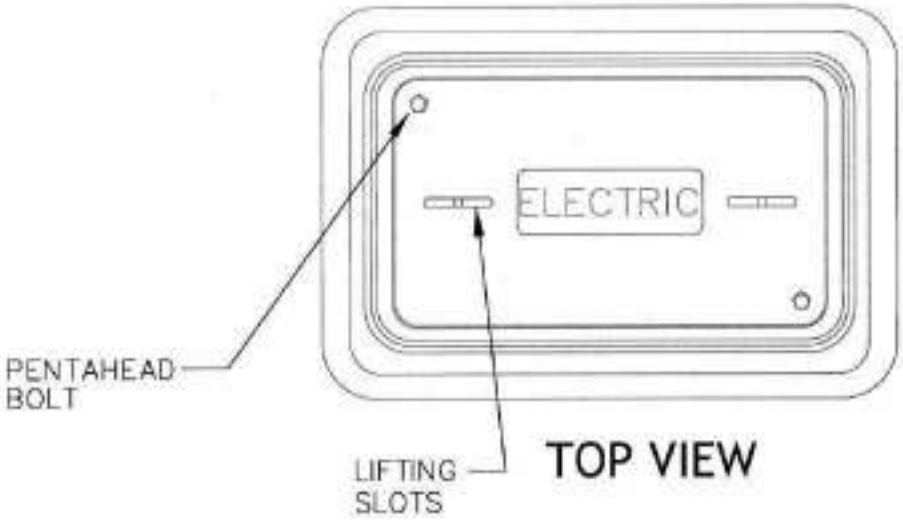
VIEW B–B

NOTES:

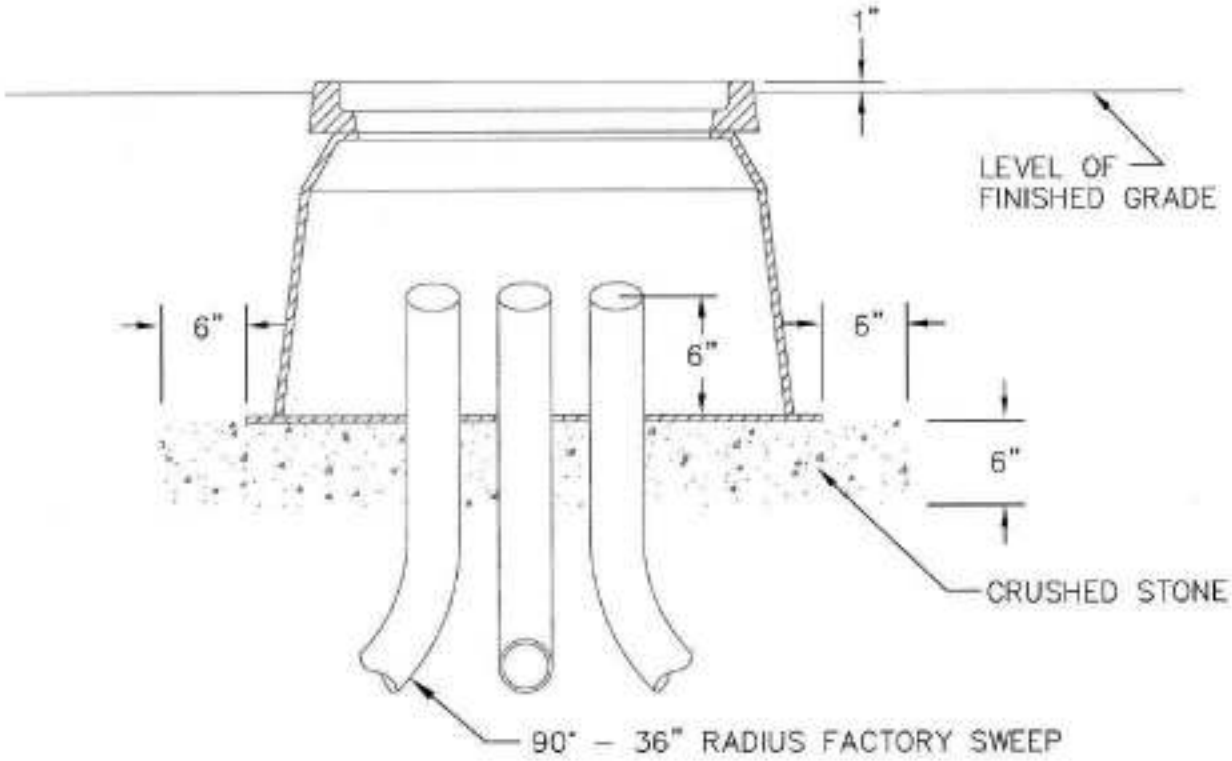
1. PULLING EYE LOCATIONS SHOWN ARE TYPICAL LOCATIONS, FINAL LOCATION/AMOUNT TO BE DETERMINED BY BED ENGINEERING. MASTIC IS TO BE PLACED BETWEEN WASHER AND VAULT WALL TO PREVENT WATER SEEPAGE.

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
THREE Ø TRANSFORMER PAD	
DATE: 07/30/14	DWG. NO.: 162202
DWN BY: RG	APP. BY:
NONE	2 2

1625



TOP VIEW

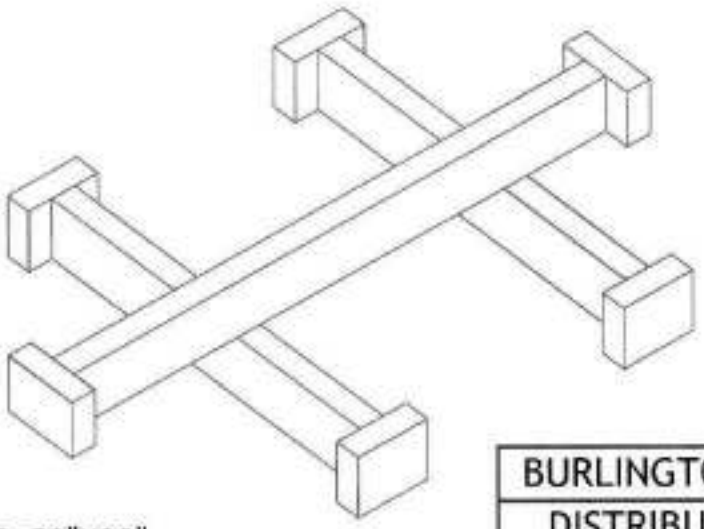


*SEE SHEET 2 FOR SPECIFICATIONS

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
UNDERGROUND ENCLOSURES	
DATE: 11/17/11	DWG. NO.: 162501
DWN BY: RG	APP. BY: MK
SCALE: 1" = 1'-0"	SHEET 1 OF 2

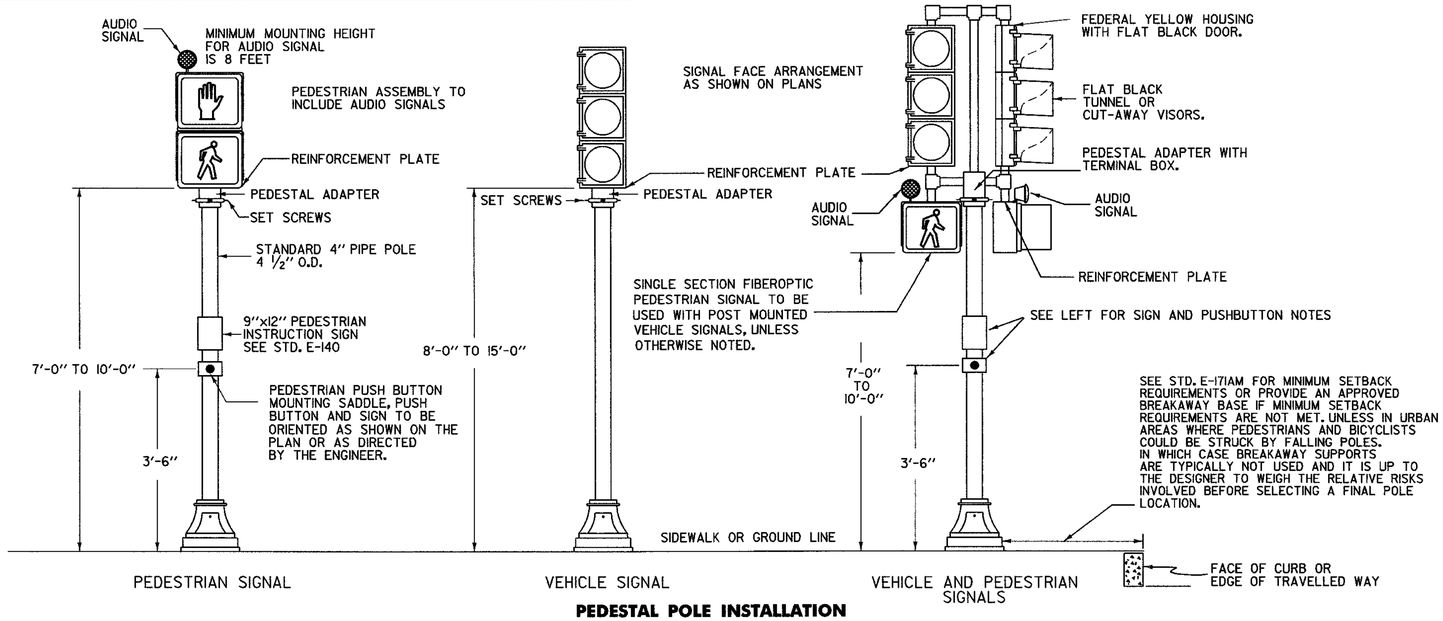
SPECIFICATIONS

1. ALL UNDERGROUND ENCLOSURES AND COVERS (CDR STYLES) INSTALLED IN THE GREENBELT/SIDEWALK SIZED (12"X17", 17"X30", 24"X36", AND 30"X60") SHALL MEET ANSI/SCTE77 2007 "Specifications for Underground Enclosures Integrity" TIER 22 (DRIVEWAY, PARKING LOT, AND OFF ROADWAY APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC). THE CDR BOXES AND COVERS SHALL BE PROVIDED BY BED.
2. ALL UNDERGROUND ENCLOSURES AND COVERS INSTALLED IN THE GREENBELT/SIDEWALK, SIZED LARGER THAN 30"X60", SHALL MEET AASHTO FULL H-20 LOADING (DELIBERATE VEHICULAR TRAFFIC APPLICATION), BE DESIGNED AND PROVIDED BY THE CONTRACTOR. DESIGN TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER. CDR STYLE ENCLOSURES SHALL NOT BE USED.
3. ALL UNDERGROUND ENCLOSURES AND COVERS (ANY SIZE) INSTALLED IN THE STREET SHALL MEET AASHTO FULL H-20 LOADING, BE DESIGNATED AND PROVIDED BY THE CONTRACTOR. DESIGN TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER. CDR STYLE ENCLOSURES SHALL NOT BE USED.
4. THE TOP OF EACH UNDERGROUND ENCLOSURE IN THE GRASS SHALL BE ONE INCH ABOVE FINISHED GRADE.
5. THE TOP OF EACH UNDERGROUND ENCLOSURE IN THE PAVEMENT/SIDEWALK SHALL BE FLUSH WITH FINISHED GRADE.
6. CONDUIT ENTRY INTO THE UNDERGROUND ENCLOSURES SHALL BE MADE BY USE OF CONDUIT SWEEPS.
7. EACH UNDERGROUND ENCLOSURE SHALL BE LEVEL AND REST ON A BEDDING OF COMPACTED CRUSHED STONE SIX INCHES IN DEPTH AND SHALL EXTEND A MINIMUM OF SIX INCHES BEYOND THE EDGE OF THE UNDERGROUND ENCLOSURE IN EACH DIRECTION PER BED STANDARD 1633.
8. THE CONTRACTOR SHALL CUT OFF THE TOPS OF THE SWEEPS INSIDE THE UNDERGROUND ENCLOSURES THREE INCHES ABOVE THE TOP OF THE STONE.
9. INTERNAL BRACING SHALL BE USED DURING THE INSTALLATION OF UNDERGROUND ENCLOSURES SIZED 30"X60" IN THE SIDEWALK AND GREENBELT. BRACING SHOULD BE 2X4'S HELD AT MID-DEPTH DURING THE INSTALLATION, COMPACTION, BACKFILLING AND IF HEAVY EQUIPMENT MAY BE PRESENT BY THE ENCLOSURE TO ENSURE MINIMAL SIDEWALL DEFLECTIONS.

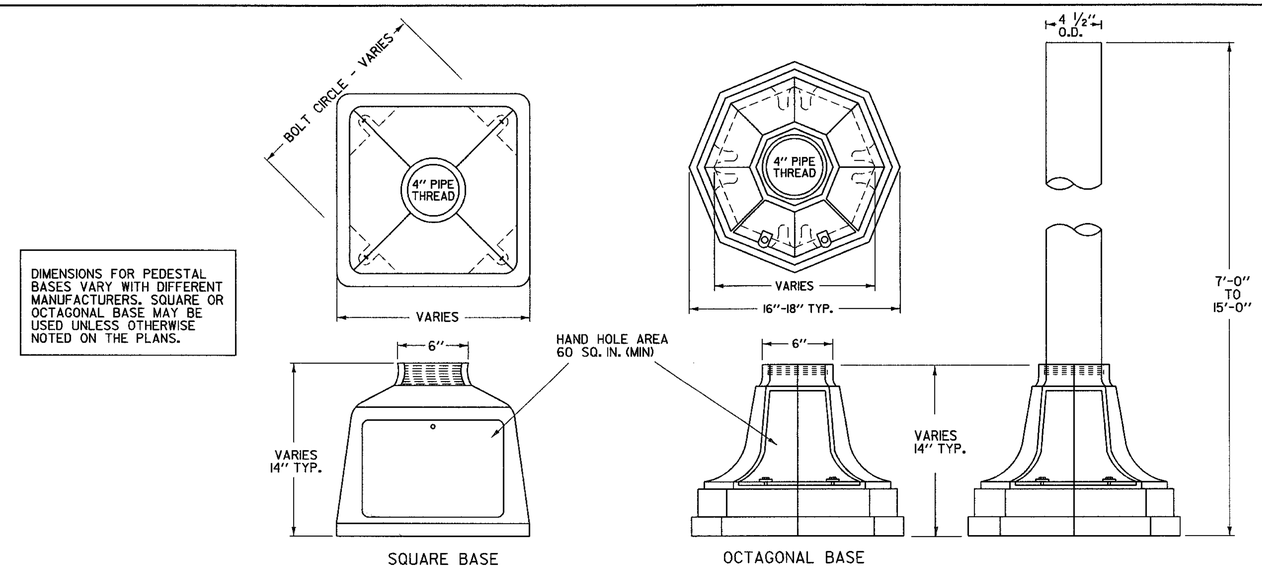


2X4'S BRACING FOR 30"X60" UNDERGROUND ENCLOSURE

BURLINGTON ELECTRIC DEPT.	
DISTRIBUTION STANDARDS	
UNDERGROUND ENCLOSURES	
DATE: 11/17/11	DWG. NO.: 162502
DWN BY: RG	APP. BY: MV
SCALE: 1" = 1'-0"	SHEET 2 OF 2



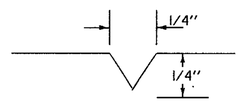
PEDESTAL POLE INSTALLATION



DETAILS OF TRAFFIC SIGNAL PEDESTAL POST AND BASE

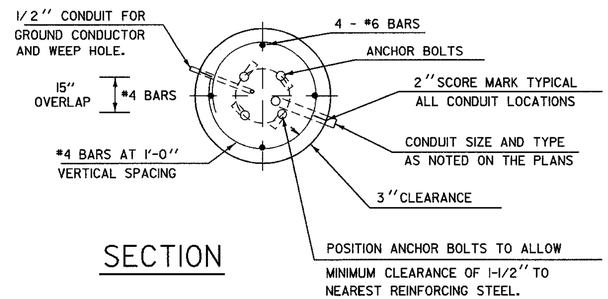
NOTES

1. REFER TO STANDARD E-171A FOR TRAFFIC SIGNAL GENERAL NOTES.
2. STEEL PEDESTAL POSTS AND BASES SHALL BE PAINTED FEDERAL YELLOW, AFTER GALVANIZATION. UNLESS OTHERWISE NOTED IN THE PLANS. ALUMINUM POSTS AND BASES SHALL HAVE A NATURAL ALUMINUM FINISH.
3. ALL PEDESTAL POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.
4. REFER TO STD E-171C FOR PEDESTRIAN PUSH BUTTON ACCESSIBILITY DETAILS.
5. PUSH BUTTON CONTROLS SHALL BE RAISED FROM OR FLUSH WITH THEIR HOUSINGS AND SHALL BE A MINIMUM OF 2" IN THE SMALLEST DIMENSIONS. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 lbf

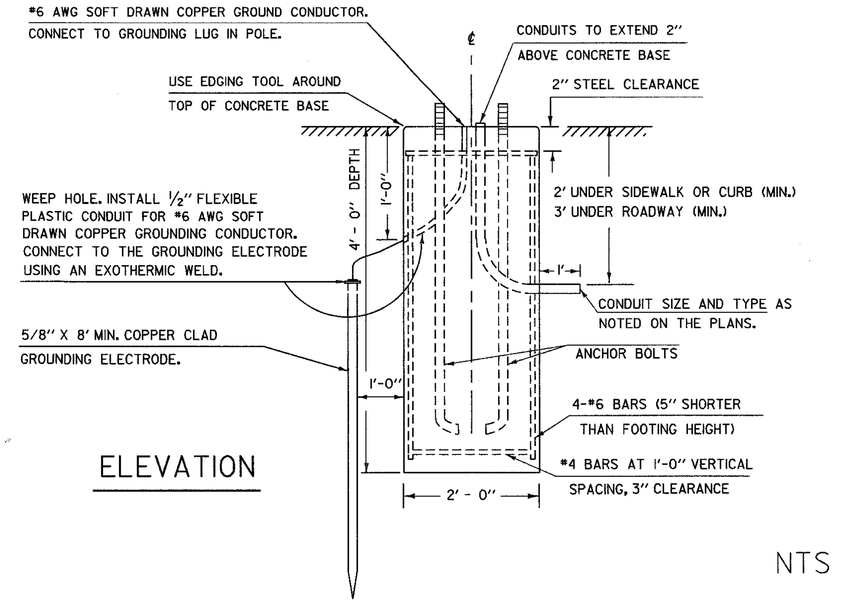


USED FOR CONDUIT LOCATION, SEE RIGHT "SECTION" DETAIL.

2" SCORE MARK DETAIL



SECTION



ELEVATION

NTS

DETAILS OF REINFORCED CONCRETE FOOTING FOR PEDESTAL POST

OTHER STDS. REQUIRED E - 140, E - 171A, E-171B, E-171C

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - MISC. COMMENTS
AUG. 9, 1995 - CORRECTED BUTTON HEIGHT, ADDED NOTE 4, REVISED BASE GROUNDING & OTHER STDS REQUIRED.
NOV. 4,1999 - CHANGED PED. POLE INSTALLATION NOTE. PER AASHTO SPECIFICATIONS

APPROVED

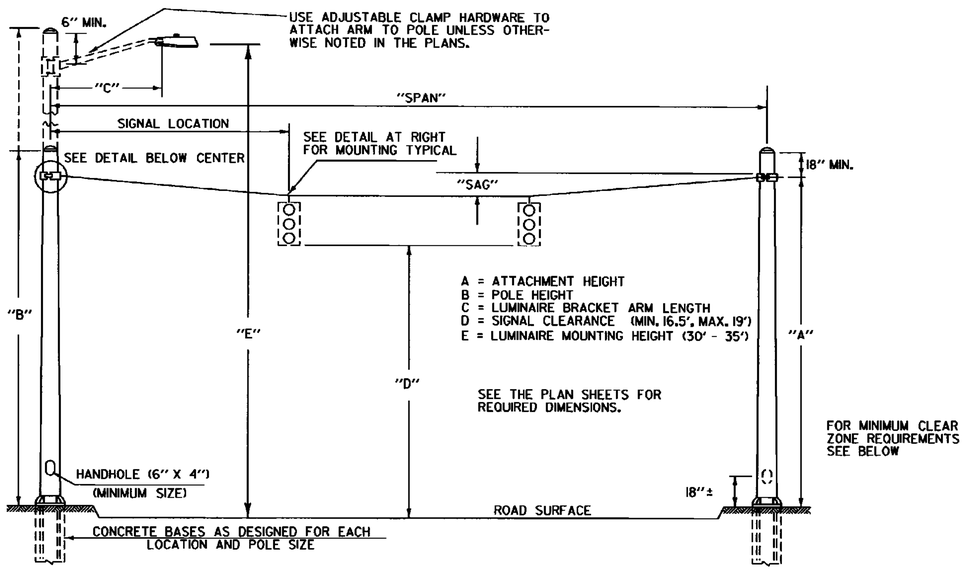
DIRECTOR OF PROJECT DEVELOPMENT

TRAFFIC CONTROL SIGNALS
PEDESTAL POST MOUNTED

/traf/english/std/el70.dgn

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-170



SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES

NOTES

1) ALL TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOC. (NEMA) AND THE INTERNATIONAL MUNICIPAL SIGNAL ASSOC. (IMSA) STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF AWG # 12 (MIN) STRANDED CONDUCTORS, AND SHALL MEET IMSA WIRE AND CABLE SPECIFICATIONS.

3) ALL SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH THEY APPLY. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION IN THE DISCONNECT HANGER.

4) THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS AN EXCLUSIVE PEDESTRIAN PHASE IS OPERATING AT THE INTERSECTION. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT ''WALK'', ''DONT WALK'', UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, AND THE STREET LIGHTING ITEM IS NOT PART OF THE CONTRACT, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER THE TRAFFIC CONTROL SIGNAL ITEM. THEY SHALL MEET ALL OF THE REQUIREMENTS OF SECTION 679 OF THE CURRENT VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

7) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO ''FINE-TUNE'' THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE APPROVED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM. MINOR TIMING CHANGES MADE TO ''FINE-TUNE'' THE CONTROLLER WILL NOT AFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

8) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL BE PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

9) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING IN PLACE.

10) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION, I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN.

11) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED, GREEN, YELLOW OR WALK SIGNAL AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.

12) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2'' WIDE. THE LOOP DETECTOR LEAD-INS SHALL ALSO BE LABELED AT THE TERMINAL BOARD AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFLIERS SHALL BE OF A TYPE THAT FAIL IN THE ''ON'' POSITION.

13) TEST SWITCHES FOR EACH PHASE SHALL BE PLACED EITHER ON THE CABINET DOOR OR IN A CONVENIENT LOCATION ON THE SIDE WALL.

14) ALL DOOR MOUNTED SWITCHES AND BUTTONS SHALL BE PROTECTED FROM ACCIDENTAL BUMPING OR FROM COMING INTO CONTACT WITH OTHER EQUIPMENT WHEN THE DOOR IS CLOSED.

15) ALL SIGNALS SHALL BE WIRED SUCH THAT NO MORE THAN TWO THROUGH FACES (NORTH-SOUTH AND/OR EAST-WEST) ARE WIRED INTO ONE LOAD SWITCH EVEN THOUGH TWO APPROACHES ARE GREEN DURING THE SAME PHASE.

16) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.

17) FOR PROGRAMMABLE SOLID STATE CONTROLLERS AND MASTERS, COPIES OF THE FINAL PROGRAM LISTINGS SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 16.

18) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES MAY BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

19) TRAFFIC SIGNALS INSTALLED AT NEW LOCATIONS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 48 HRS.

20) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT SEQUENCING PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

21) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS FOR THE ALTERNATE MOUNTING HARDWARE MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE VAOT VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

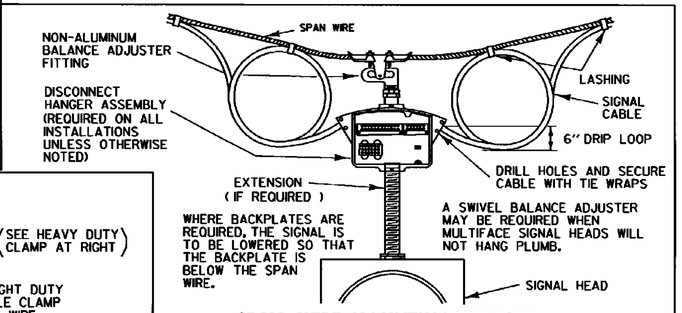
22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

23) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING EACH OTHER.

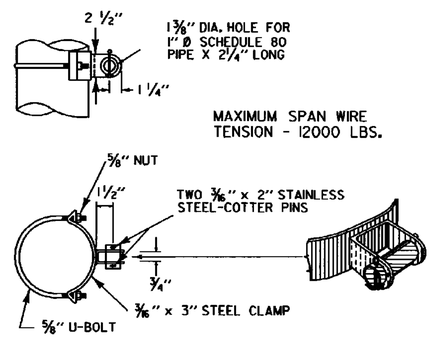
24) WHEN MASKING OF OPTICALLY PROGRAMMABLE SIGNAL HEADS IS REQUIRED, THE HEADS SHALL BE RIGIDLY MOUNTED OR TETHERED, AS SHOWN ON STD E-171B.

25) WHEN STREET LIGHTING AND SIGNALS ARE INSTALLED AT THE SAME LOCATION, THE POWER FOR EACH SHALL BE SEPARATED AT THE STANCHION OR SERVICE.

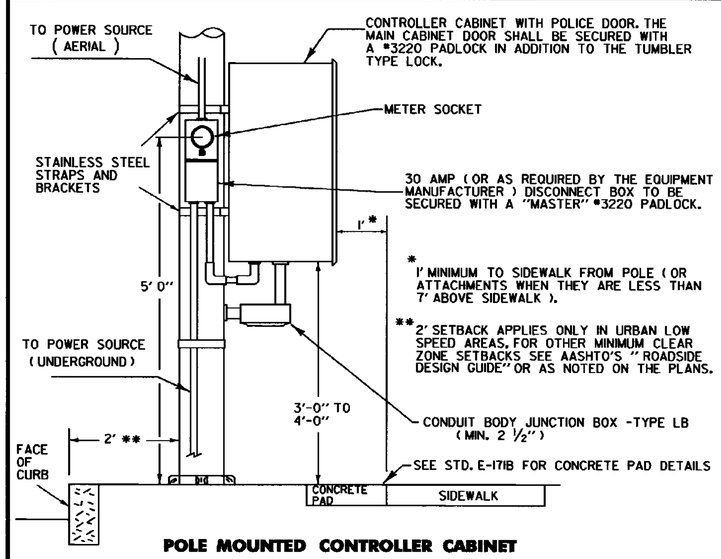
26) WHEN MORE THAN ONE SIGNAL IS POWERED FROM THE SAME SERVICE, EACH SHALL HAVE ITS OWN DISCONNECT AT THE STANCHION.



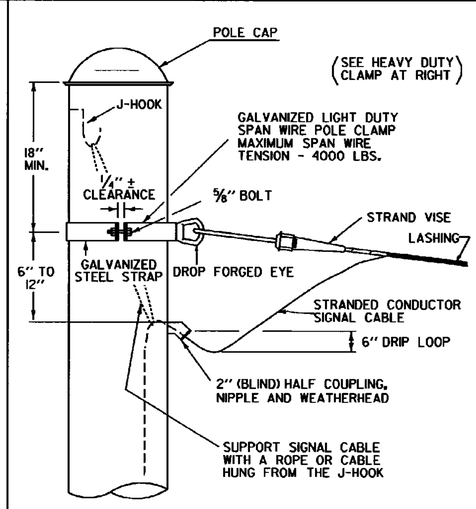
SPAN WIRE MOUNTING TYPICAL



SPAN WIRE CLAMP
(HEAVY DUTY GALVANIZED)



POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL



CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP
(LIGHT DUTY GALVANIZED)

OTHER STDS. REQUIRED E – 171B, E – 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS AND POLE MOUNTING DETAIL MOVED TO E-171B
AUG. 9, 1995 - GENERAL REVISION OF NOTES & DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Stanton D. MacArthur
DIRECTOR OF ENGINEERING

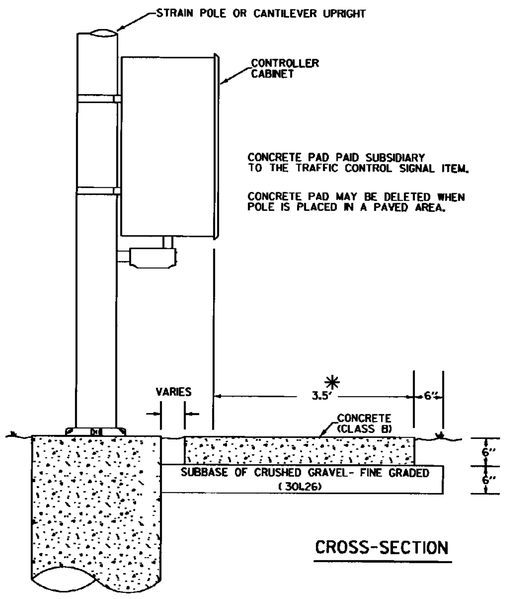
David A. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

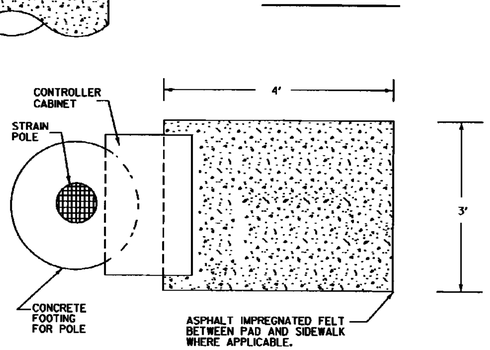
/traf/std/stde171a.dgn - stde171a.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171A

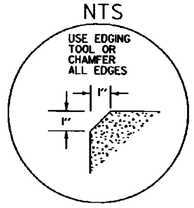


CROSS-SECTION



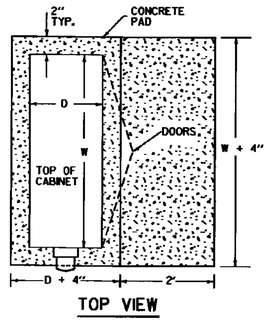
TOP VIEW

NTS



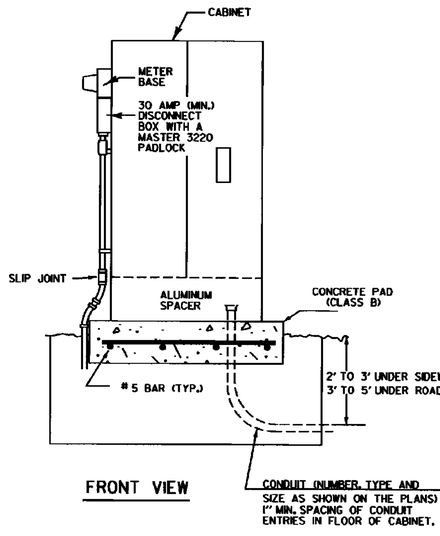
* THE 3.5 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET

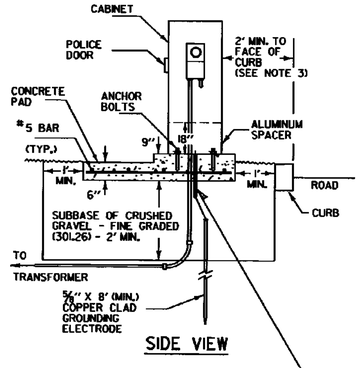


TOP VIEW

THE CABINET DIMENSIONS "D" AND "W" VARY WITH MANUFACTURER. A TYPICAL "P" CABINET HAS DIMENSIONS OF D = 26" AND W = 46".



FRONT VIEW



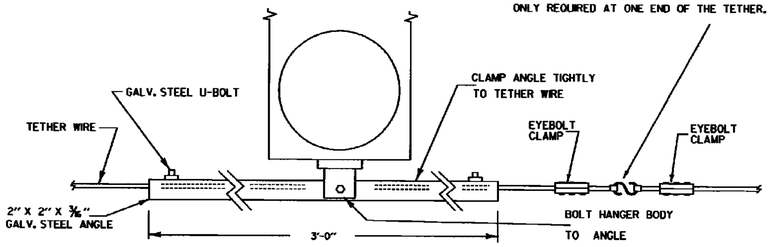
SIDE VIEW

WEEP HOLE. INSTALL ½" FLEXIBLE PLASTIC CONDUIT FOR #6 AWG SOFT DRAWN COPPER GROUNDING CONDUCTOR. CONNECT TO GROUNDING ELECTRODE USING AN EXOTHERMIC WELD. CUT CONDUIT FLUSH WITH TOP OF CONCRETE PAD.

GROUND MOUNTED CONTROLLER CABINET

THE TETHER WIRE SHALL BE A STRANDED GALVANIZED STEEL CABLE WITH A BREAKING STRENGTH OF 1000 POUNDS +/-.

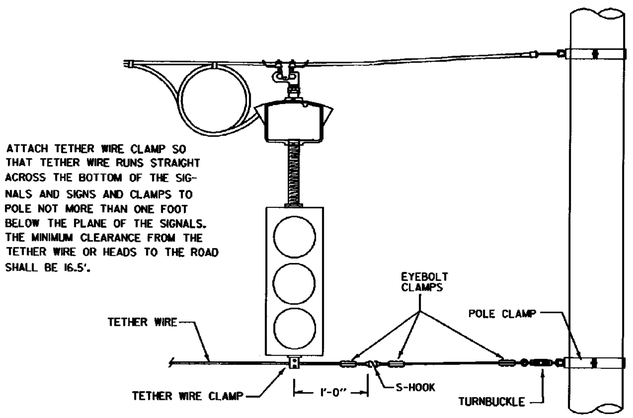
INSTALL "S" HOOK AT THE FIRST POINT WHERE A SIGNAL OR SIGN CONNECTS TO THE SPAN WIRE. THE "S" HOOK SHALL FAIL AT 50 TO 75 PERCENT OF THE TETHER WIRE BREAKING STRENGTH. THE "S" HOOK IS ONLY REQUIRED AT ONE END OF THE TETHER.



OPTICALLY PROGRAMMED SIGNAL HEAD WHEN MASKING IS REQUIRED

TETHER WIRE ATTACHMENT DETAILS

ATTACH TETHER WIRE CLAMP SO THAT TETHER WIRE RUNS STRAIGHT ACROSS THE BOTTOM OF THE SIGNALS AND SIGNS AND CLAMPS TO POLE NOT MORE THAN ONE FOOT BELOW THE PLANE OF THE SIGNALS. THE MINIMUM CLEARANCE FROM THE TETHER WIRE OR HEADS TO THE ROAD SHALL BE 16.5'.

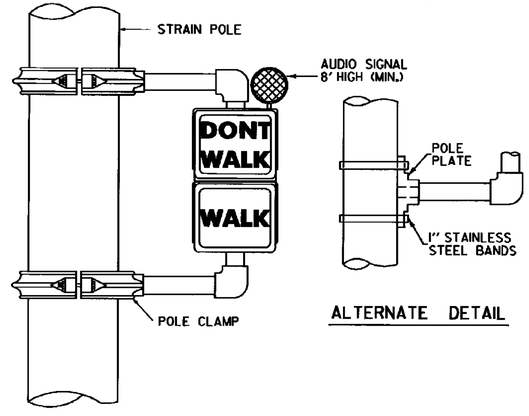


STANDARD OR UNMASKED OPTICALLY PROGRAMMED SIGNAL HEAD

NOTES:

1. THE CONCRETE PAD SURFACE SHALL HAVE A BRUSHED FINISH.
2. AN ASPHALT IMPREGNATED FELT PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.
3. THE MINIMUM CLEAR ZONE IN LOW SPEED URBAN AREAS IS 2' BEYOND THE FACE OF CURB. IN OTHER CASES, THE MINIMUM IS EQUAL TO THE CLEAR ZONE AS DEFINED IN AASHTO'S ROADSIDE DESIGN GUIDE.
4. THE CONRETE AND SUBBASE OF CRUSHED GRAVEL SHALL BE SUBSIDIARY TO THE TRAFFIC SIGNAL ITEM.
5. FOR GROUND MOUNTED CABINET INSTALLATIONS:
   - A. THE METER SHOULD BE INSTALLED AS SHOWN ON THE PLANS. THE PREFERRED METER LOCATION IS ON A SEPARATE POLE OR STANCHION. HOWEVER, IF LIMITING CONDITIONS EXIST, THE METER MAY BE INSTALLED ON THE CONTROLLER CABINET ON THE SIDE AWAY FROM APPROACHING TRAFFIC.
   - B. THE NUMBER 5 BARS SHALL BE SPACED 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.
   - C. ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
   - D. THE ALUMINUM SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.

SIGNAL HEAD AS INDICATED ON PLANS-PEDESTRIAN HEAD DRAWN ONLY AS REFERENCE



ALTERNATE DETAIL

DETAIL FOR POLE MOUNTING SIGNAL HEAD

OTHER STDS. REQUIRED E - 171A, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS, MOVED CANTILEVER DETAILS TO NEW E-171C AND ADDED TETHER WIRE DETAIL
AUG. 9, 1995 - SPECIFIED MATERIAL UNDER PAD, REVISED NOTES AND MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

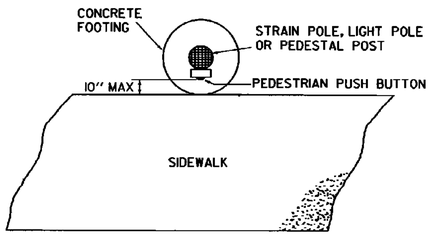
David A. Ross
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS MISC. DETAILS

/traf/std/stdel71b.dgn - stdel71b.i

VERMONT AGENCY OF TRANSPORTATION

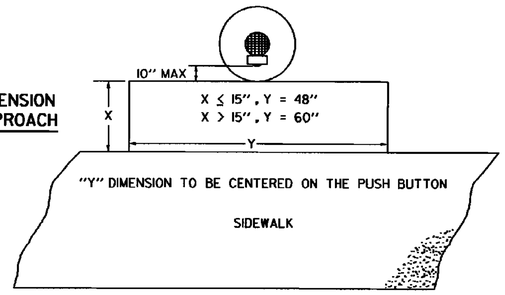
STANDARD
E-171B

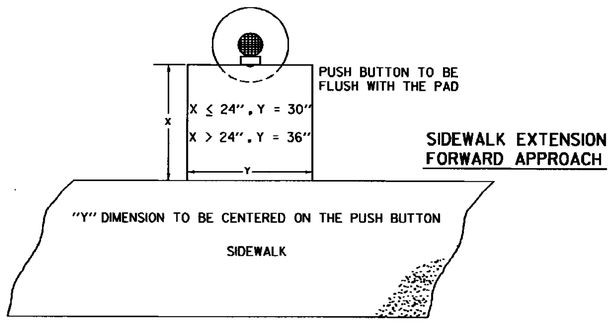


IF THE PEDESTRIAN PUSH BUTTON IS NOT LOCATED WITHIN 10'' OF THE SIDEWALK, AN EXTENSION TO THE SIDEWALK MUST BE PROVIDED AS SHOWN BELOW. BUTTONS LOCATED ON THE SIDE OF CONTROLLER CABINETS MAY REQUIRE EXTENSION OF THE CONCRETE PAD, SHOWN ON STD E-171B, TO MEET THIS REQUIREMENT.

WHEN SIDEWALK EXTENSIONS ARE PROVIDED, A SUBBASE OF FINE GRADED CRUSHED GRAVEL SHALL BE PLACED AND ASPHALT IMPREGNATED FELT SHALL BE USED BETWEEN THE EXTENSION AND THE SIDEWALK AS SHOWN ON STD E-171B.

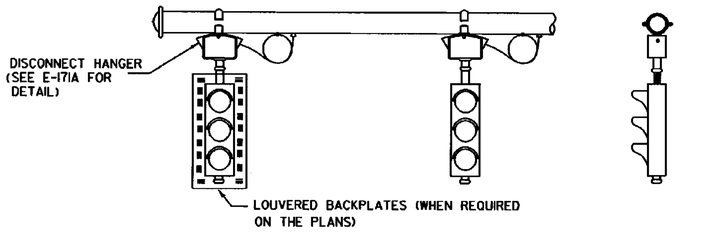
SIDEWALK EXTENSION
PARALLEL APPROACH

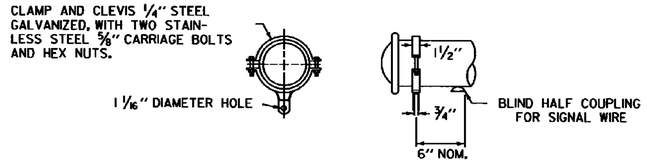




SIDEWALK EXTENSION
FORWARD APPROACH

PEDESTRIAN PUSH BUTTON ACCESSIBILITY DETAIL



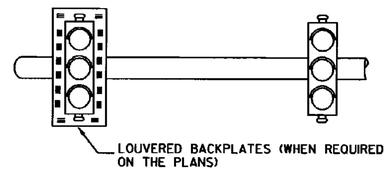


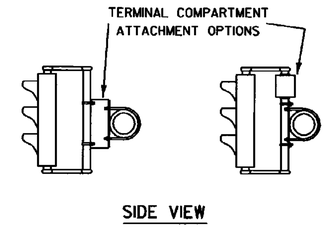
MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS

CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)

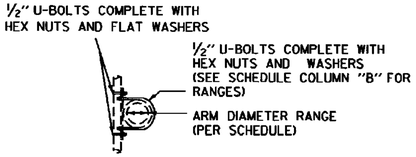
MINIMUM SIGNAL CLEARANCE SHALL BE:
16.5' FOR FREE SWINGING HEADS, OR
17' FOR FIXED MOUNTED HEADS

SEE THE CANTILEVER / FOOTING DETAIL SHEET(S) FOR ADDITIONAL INFORMATION.





SIGNAL MOUNTING PLATE SCHEDULE			
ARM DIAMETER	A	B	C
3 1/10" - 5 3/10"	8 3/4"	5 3/8"	1 11/16"
5 3/10" - 7 9/10"	10 3/4"	7 5/8"	1 9/16"
7 9/10" - 11 3/10"	14"	10 7/8"	1 9/16"



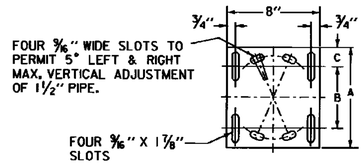
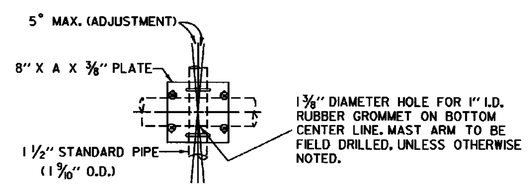


PLATE DETAIL



1. ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS FOR THE ALTERNATE METHOD HARDWARE SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH REINFORCEMENT PLATES AT THE ATTACHMENT POINTS.
3. ALL NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL.
4. ALL OTHER MOUNTING BRACKET MATERIALS SHALL BE GALVANIZED STEEL.

MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS
(PREFERRED METHOD)

OTHER STDS. REQUIRED E - 170 , E - 171A , E - 171B

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

AUG. 9, 1995 - ADDED PED. PUSH BUTTON ACCESSIBILITY DETAIL, REMOVED GENERAL CANTILEVER DETAIL, MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

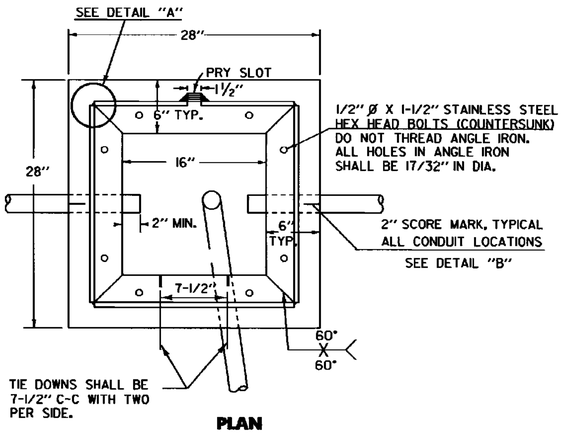
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL SIGNALS
CANTILEVER MOUNTING DETAILS
PED. PUSH BUTTON ACCESSIBILITY DETAIL

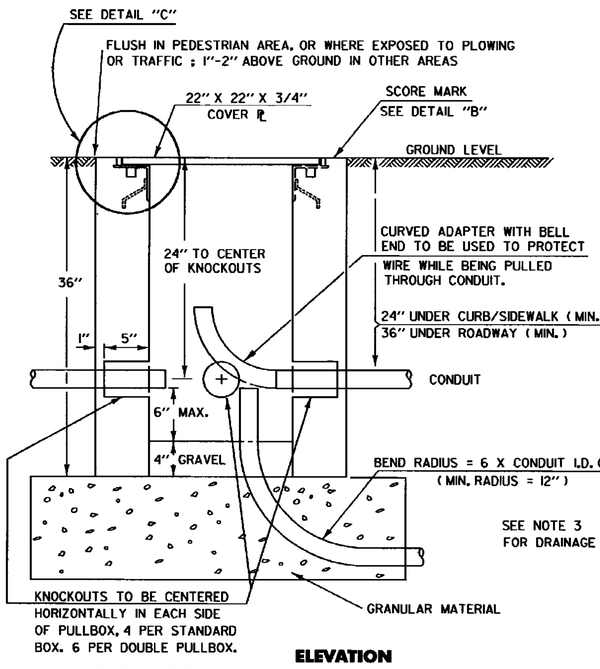
/traf/std/std_e171c.dgn - std_e171c.l

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171C

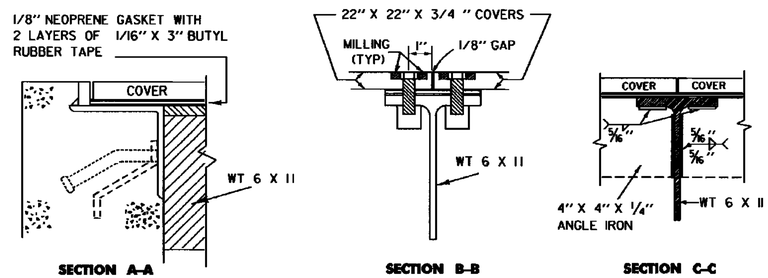


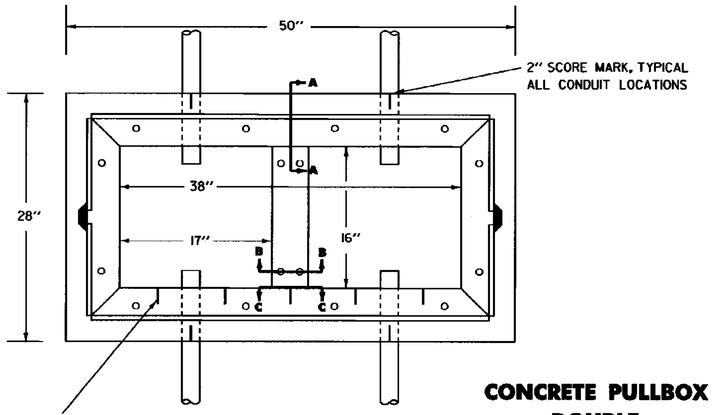
PLAN



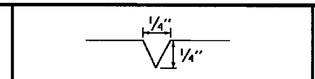
ELEVATION

CONCRETE PULLBOX STANDARD

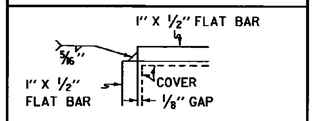




CONCRETE PULLBOX DOUBLE



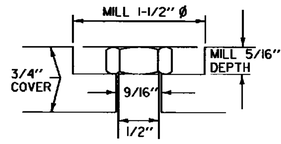
DETAIL "B"



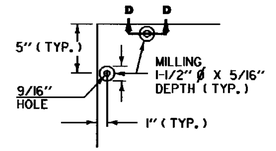
DETAIL "A"

NEOPRENE GASKET SHALL BE MADE FROM 3" STRIPS CUT AT A 45° ANGLE. USE A 4" STRIP WITH A BUTT JOINT ALONG THE T-BAR ON DOUBLE PULLBOXES.

GASKET DETAIL

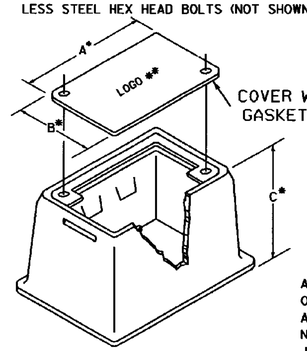


SECTION D-D



BOLT / MILLING DETAIL

COVER TO BE HELD IN PLACE BY 2 (OR 4) STAINLESS STEEL HEX HEAD BOLTS (NOT SHOWN)

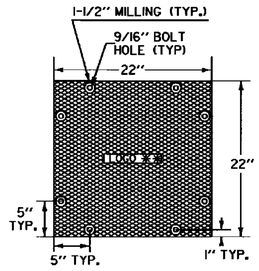


* DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (MINIMUM 18" X 12" X 12" OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE)

ALL JUNCTION BOXES SHALL HAVE EITHER STRAIGHT OR TAPERED SIDES (SMALLER SQUARE OR RECTANGULAR DIMENSION AT THE TOP). THERE SHALL BE NO OUTWARD PROTRUDING LIPS AT THE TOP OF THE JUNCTION BOX.

JUNCTION BOX

(SHAPE MAY VARY SLIGHTLY WITH MANUFACTURER)



PULLBOX COVER

LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.

** ALTERNATE LOGOS
SIGNAL
ELECTRIC
LIGHTING

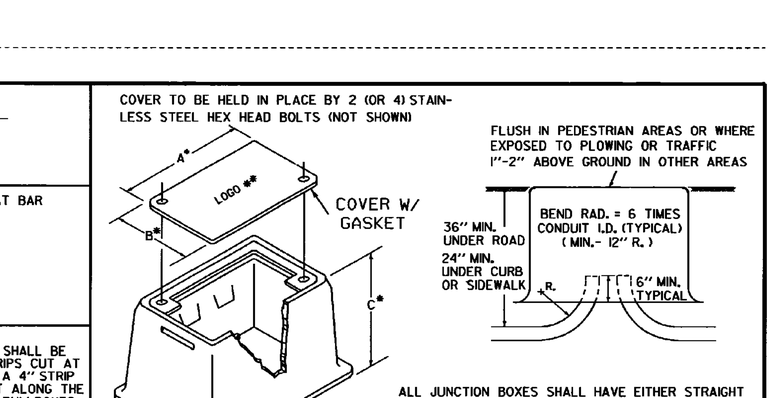
ALL PULLBOX COVERS SHALL BE SKID RESISTANT. ALL COVERS SHALL HAVE THE LOGO PUNCHED OR STAMPED INTO A FLAT RECTANGLAR AREA. MINIMUM LETTER HEIGHT IS 1/2", MINIMUM DEPTH IS 1/16". DOUBLE PULLBOXES REQUIRE ONLY ONE LOGO.

ALL HOLES IN THE COVER SHALL BE 9/16" IN DIA.

PULLBOX COVER & LOGO DETAILS

PULLBOX & JUNCTION BOX NOTES

1. ALL PULLBOXES SHALL BE CONSTRUCTED WITH CONCRETE, CLASS B.
2. CONDUIT SIZE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR THE UNITS SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3'' PERFORATED PVC) SHALL BE PROVIDED FROM THE UNIT TO THE NEAREST APPROPRIATE OUTLET. DRAINAGE WORK SHALL NOT BE PAID DIRECTLY, BUT WILL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
4. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
5. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THROUGH THE SIDE WALL.
6. CONDUITS SHALL NOT ENTER DOUBLE PULLBOXES, DIRECTLY UNDER THE "T" BAR.
7. THE PRY SLOT AND THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
8. WHEN INSTALLED ON SLOPES, PULLBOXES AND JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. ON STEEPER SLOPES, THEY SHALL BE INSTALLED AS ON A 1 ON 4 SLOPE. A SUFFICIENT AMOUNT OF THE EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX SUCH THAT THE MAXIMUM EXPOSURE IS 2''. THE MATERIAL SHALL BE TAPERED OVER AN AREA EXTENDING ABOUT 5' FROM THE BOX. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
9. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
10. ALL CONDUITS ENTERING A PULLBOX OR JUNCTION BOX SHALL HAVE BUSHINGS TO PROTECT THE CABLES.



DETAIL "C"

OTHER STDS. REQUIRED NONE

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 1, 1989 - REVISED COVER DIMENSIONS
MAY 26, 1989 - FHWA COMMENTS
NOV. 17, 1993 - MAJOR REVISIONS, STANDARDIZATION OF PULLBOX COVERS
AUG. 9, 1995 - REVISED NOTE 8, CHANGED LOGO OPTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A Ross
TRAFFIC AND SAFETY ENGINEER

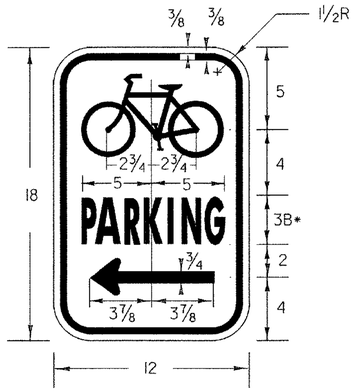
PULLBOXES AND JUNCTION BOXES

/traf/std/stdel73.dgn - stdel73.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-173

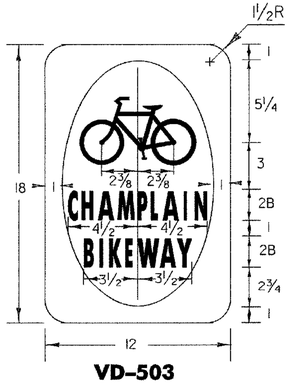
Bikeway Details



* REDUCE LETTER SPACING 50%

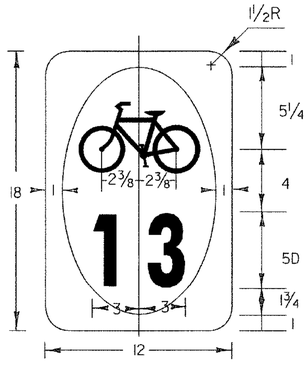
D4-3

COLORS: BACKGROUND - WHITE (REFL)
TEXT, BORDER AND SYMBOLS - GREEN (REFL)



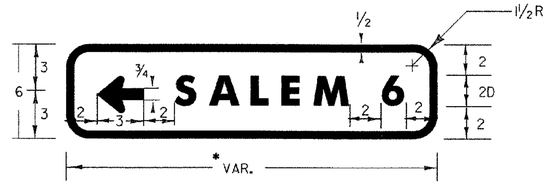
VD-503

COLORS:
LEGEND AND SYMBOL - WHITE (REFL)
INNER BACKGROUND - GREEN (REFL)
OUTER BACKGROUND - WHITE (REFL)

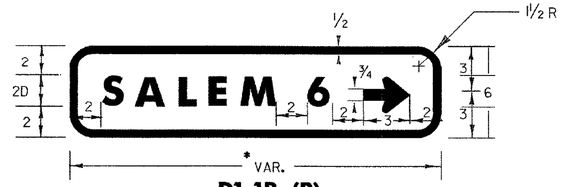


M1-8

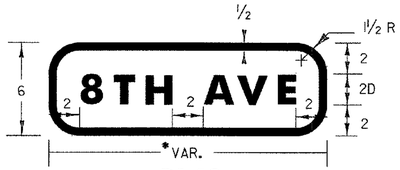
COLORS:
LEGEND AND SYMBOL - WHITE (REFL)
INNER BACKGROUND - GREEN (REFL)
OUTER BACKGROUND - WHITE (REFL)



D1-1B (L)

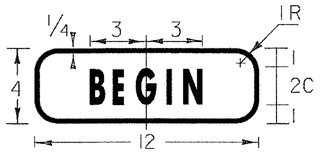


D1-1B (R)

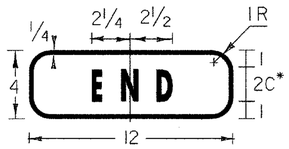


D1-1C

* 24 INCH MAX.

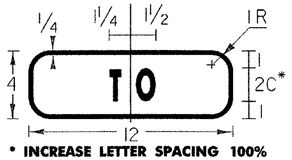


M4-11



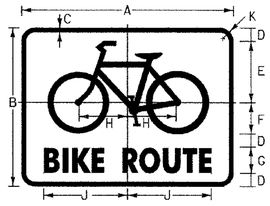
* INCREASE LETTER SPACING 100%

M4-12

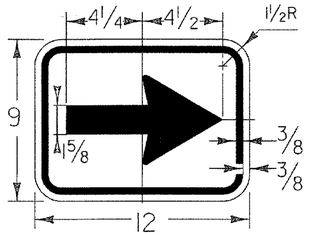


* INCREASE LETTER SPACING 100%

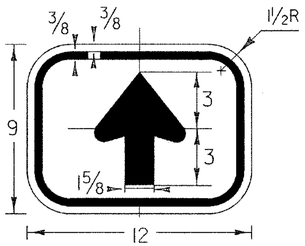
M4-13



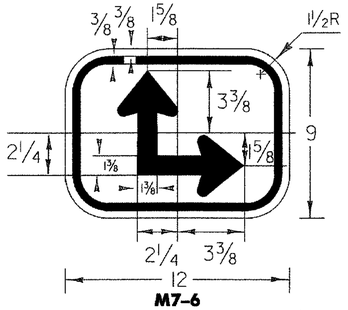
D11-1



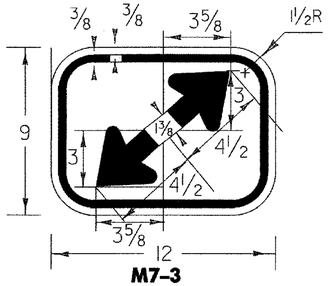
M7-1



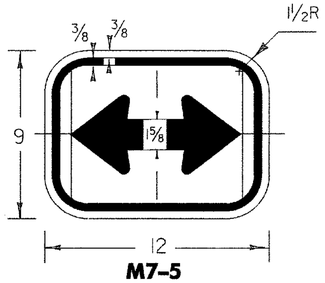
M7-2



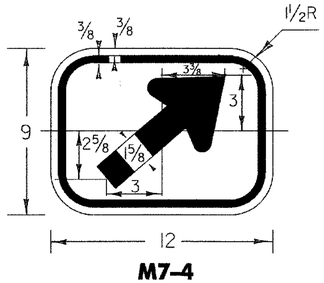
M7-6



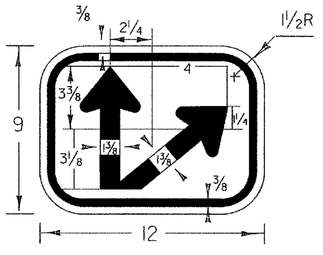
M7-3



M7-5



M7-4



M7-7

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN& STD	24	18	½	1½	7	3½	3C	5½	9½	1½

GENERAL

SEE STANDARD E-144 FOR ARROWHEAD DETAILS. SEE FHWA STANDARD HIGHWAY SIGN BOOK FOR BIKE DETAIL.
SUPPLEMENTAL PLAQUES SHALL BE USED ONLY IN COMBINATION WITH GUIDE SIGNS. THEY SHALL NOT BE MOUNTED ALONE OR DISPLAYED ALONE. IF USED, A SUPPLEMENTAL PLAQUE SHALL BE INSTALLED ON THE SAME POST(S) AS THE GUIDE SIGN.

COLORS

THE SIGNS SHOWN ON THIS SHEET SHALL HAVE REFLECTORIZED WHITE TEXT, SYMBOLS AND BORDER ON A REFLECTORIZED GREEN BACKGROUND UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

MATERIALS

THE SIGN BASE MATERIALS USED FOR GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED:

	12 X 4 12 X 9 12 X 18	24 X 6 24 X 18
FLAT SHEET ALUMINUM	0.060"	0.080"
HIGH DENSITY OVERLAID PLYWOOD	½"	½"

THE REFLECTIVE MATERIAL SHALL BE ASTM TYPE III GREEN OR WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER MAY BE LETTERING FILM OR SILK SCREENED.

SPECIFICATIONS

GUIDE SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS AS DESCRIBED IN THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

TEXT DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM TO THE LATEST VERSION OF FHWA'S 'STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'. DETAILS SHALL CONFORM WITH THOSE DESCRIBED IN THE PUBLICATION 'STANDARD HIGHWAY SIGNS' AS SPECIFIED IN THE MUTCD.

ALL DIMENSIONS ARE IN INCHES EXCEPT WHERE NOTED

OTHER STDS. REQUIRED: E-144

REVISIONS AND CORRECTIONS
MAY 30, 2003 - DATE OF ORIGINAL ISSUE

APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT

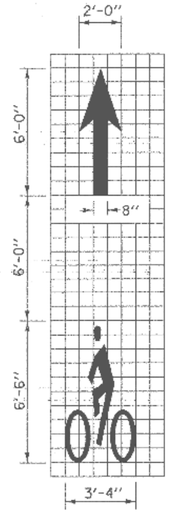
TRAFFIC OPERATIONS ENGINEER

FEDERAL HIGHWAY ADMINISTRATION

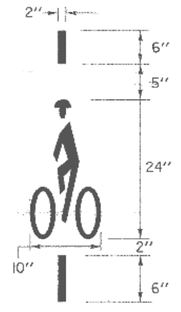
BICYCLE GUIDE SIGN DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-131B

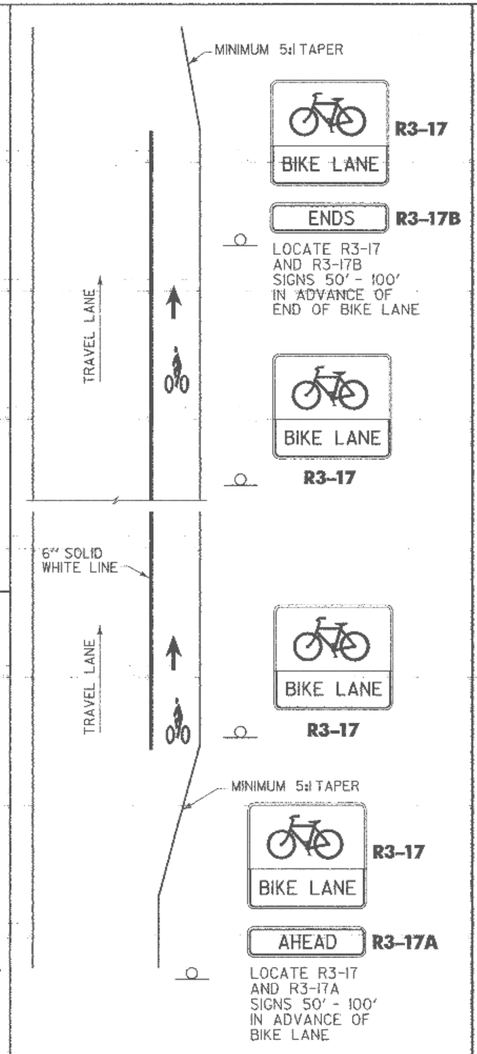


BICYCLE STENCIL PAVEMENT MARKING

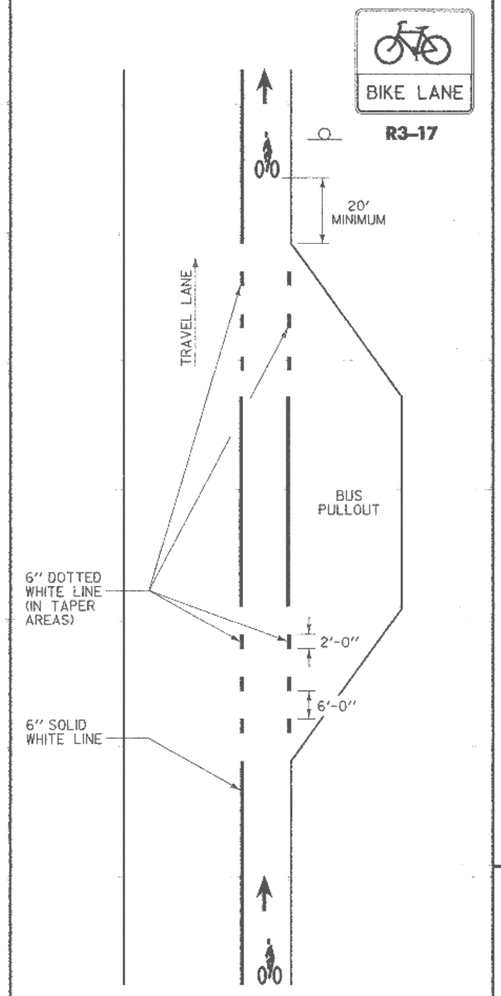


NOTE:
IF THE BICYCLE DETECTOR PAVEMENT MARKING IS USED, IT SHALL BE PLACED IN THE AREA OF HIGHEST SENSITIVITY OF VEHICLE DETECTOR LOOPS IN OUTSIDE TRAVEL LANES OR WHEN DETECTOR LOOPS ARE PLACED IN BICYCLE LANES. WHEN PAVEMENT MARKING IS USED, AN R10-22 SIGN SHALL BE INSTALLED.

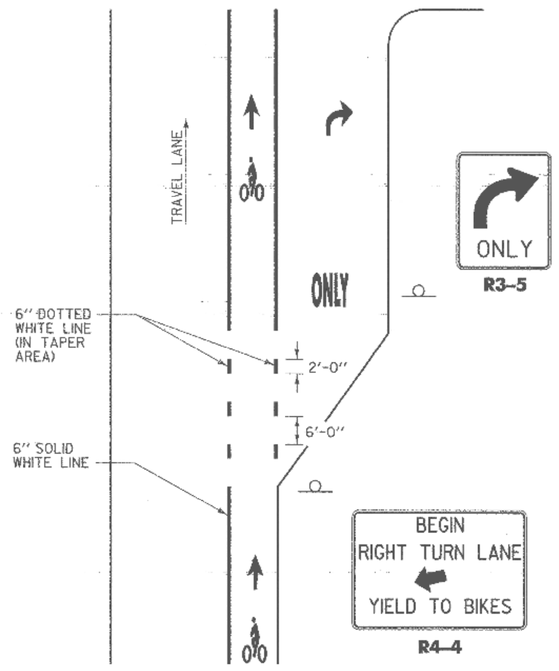
BICYCLE DETECTOR PAVEMENT MARKING



BICYCLE LANE PAVEMENT MARKINGS

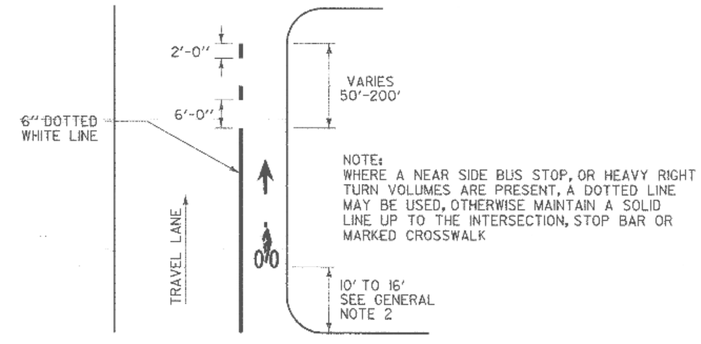


BUS PULLOUT WITH BICYCLE LANE PAVEMENT MARKINGS

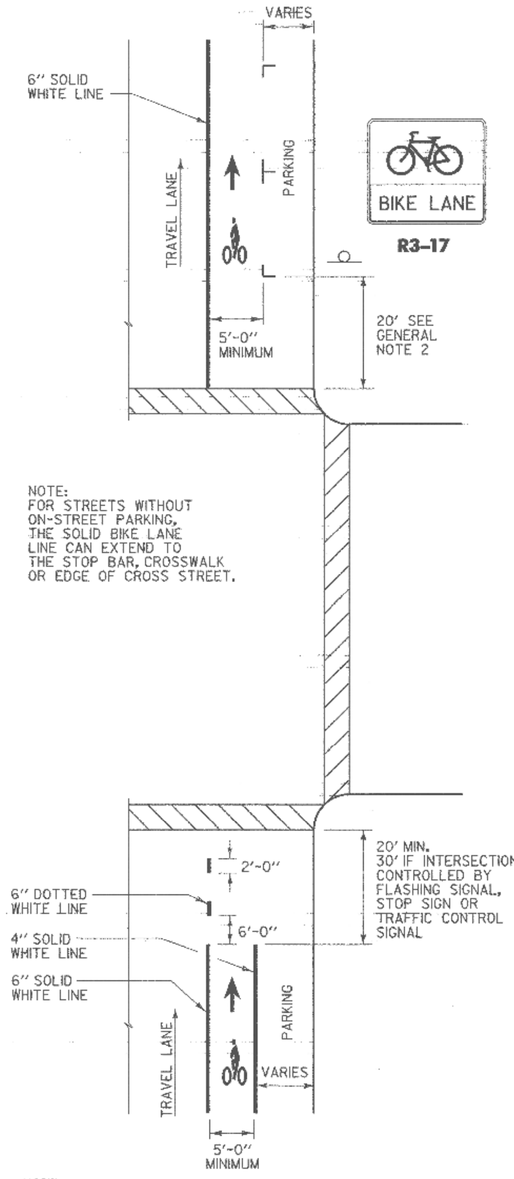


NOTE:
REFER TO VAOT STANDARD DRAWING E-192 FOR DETAILS ON PAVEMENTS MARKINGS FOR TURNING LANES.

BIKE LANE/RIGHT TURN LANE PAVEMENT MARKINGS



OPTIONAL BIKE LANE PAVEMENT MARKINGS WITH BUS STOPS OR HEAVY RIGHT TURN VOLUMES



NOTE:
WHERE BICYCLE LANES ARE ADJACENT TO ON-STREET PARKING, A BICYCLE LANE WIDTH OF AT LEAST 5'-0" IS RECOMMENDED.

BIKE LANE PAVEMENT MARKINGS AT INTERSECTION WITH ON STREET PARKING

GENERAL NOTES

1. ALL BICYCLE LANE PAVEMENT MARKINGS TO BE WHITE RETROREFLECTORIZED PAINT OR MAXIMUM 90 MIL THICK SLIP RESISTANT DURABLE MARKINGS.
2. ADJUST LOCATION OF BICYCLE LANE PAVEMENT MARKING TO AVOID PLACEMENT WHERE IT IS LIKELY TO BE TRAVERSED BY VEHICLES, SUCH AS AT DRIVEWAYS.
3. REFER TO VAOT PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL FOR GUIDANCE ON OTHER BIKE LANE CONFIGURATIONS.
4. PLACE BICYCLE STENCIL PAVEMENT MARKINGS AFTER STREET INTERSECTIONS AND AT INTERMEDIATE LOCATIONS ON LONG UNINTERRUPTED SECTIONS.

OTHER STDS. REQ'D:
E-143B, E-172, E-192

THIS SHEET IS NOT TO SCALE

REVISIONS AND CORRECTIONS

FEB. 06, 2004	DATE OF ORIGINAL ISSUE
MAR. 15, 2005	REVISED SIGNS AND ADDED BICYCLE DETECTOR PAVEMENT MARKING

APPROVED

Richard Tetreault
DIRECTOR OF PROGRAM DEVELOPMENT

Alan E. Dewaide
LOCAL TRANSPORTATION FACILITIES PROGRAM MANAGER

FEDERAL HIGHWAY ADMINISTRATION

BICYCLE PAVEMENT MARKINGS AND SIGN LAYOUT

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-194

Street Ecology Details

VAOT URBAN LAWN MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
42.5%	34	68	CREEPING RED FESCUE	FESTUCA RUBRA X RUBRA	85%	98%
20.0%	16	32	PERENNIAL RYE GRASS	LOLIUM PERENNE	90%	95%
32.5%	26	52	KENTUCKY BLUE GRASS	POA PRATENSIS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	80	160				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. SEED MIX: THE URBAN AREA MIX SHALL NOT BE USED IN WETLANDS OR ANY WATERS OF THE STATE OF VERMONT.

2. SEED MIX: USE ONLY AS INDICATED IN THE PLANS.

3. SEED MIX: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER

5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.

6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED

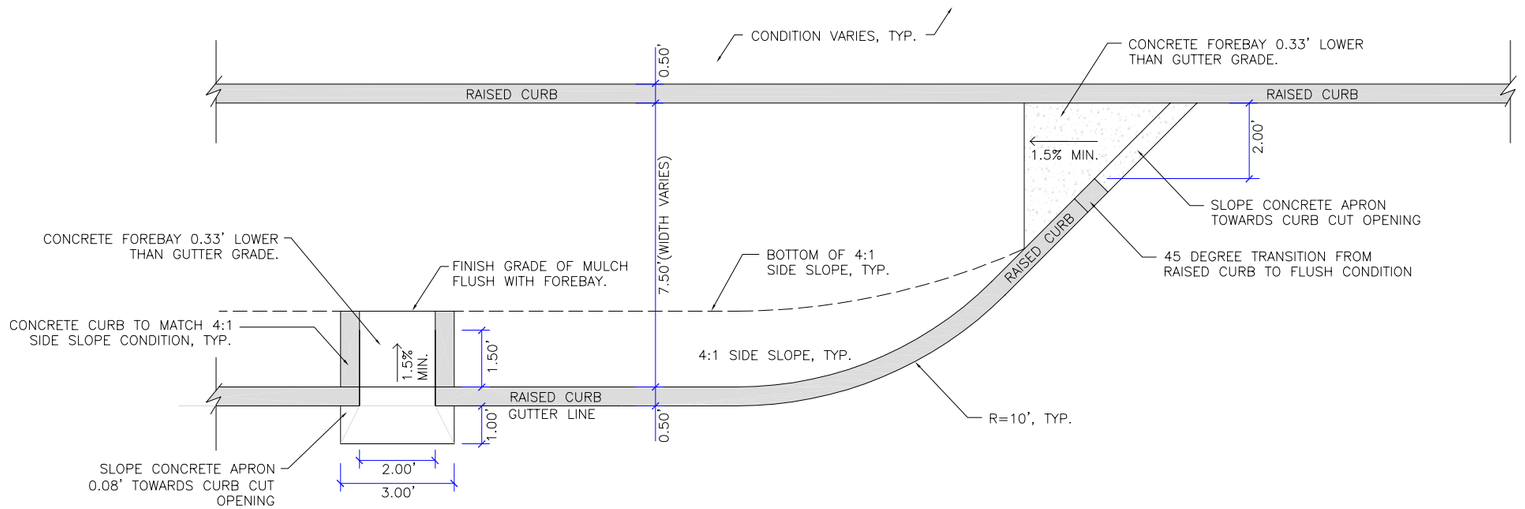
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

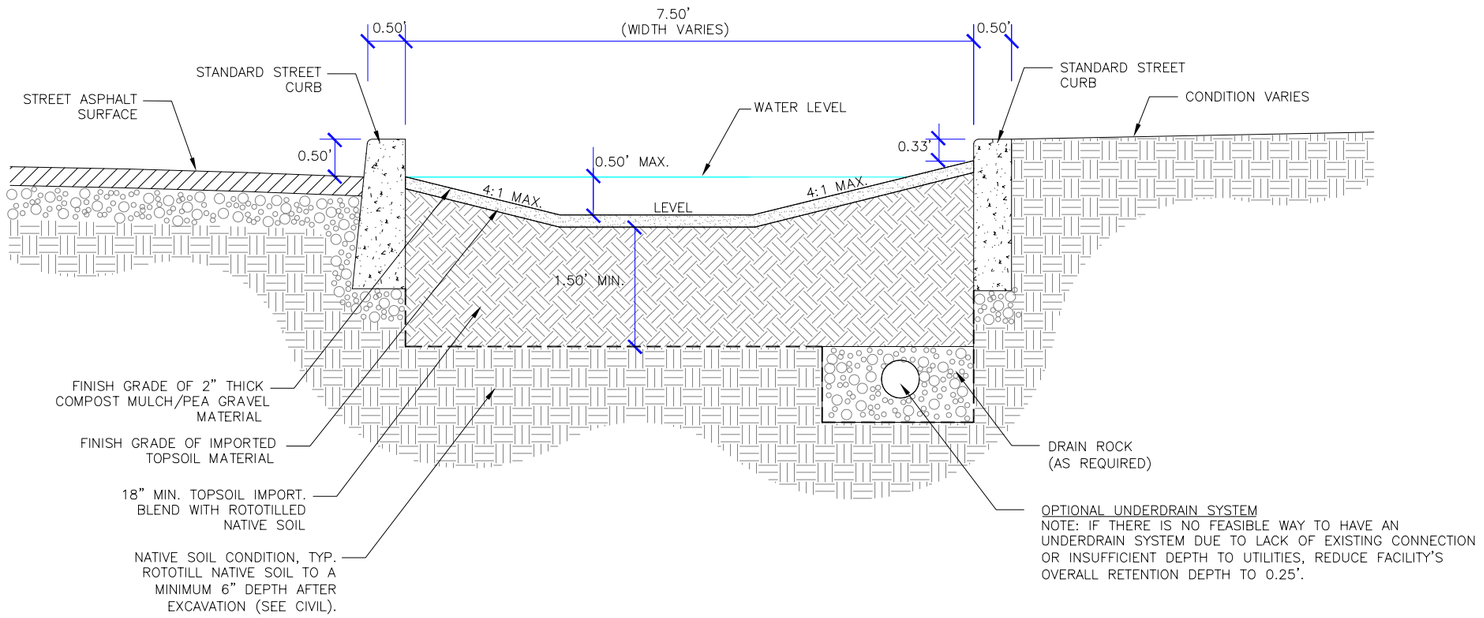
REVISIONS	
JANUARY 22, 2015	WHF



Scale: 1/4" = 1' - 0"

Stormwater Curb Extension Plan (No Capture of Landscape Strip)

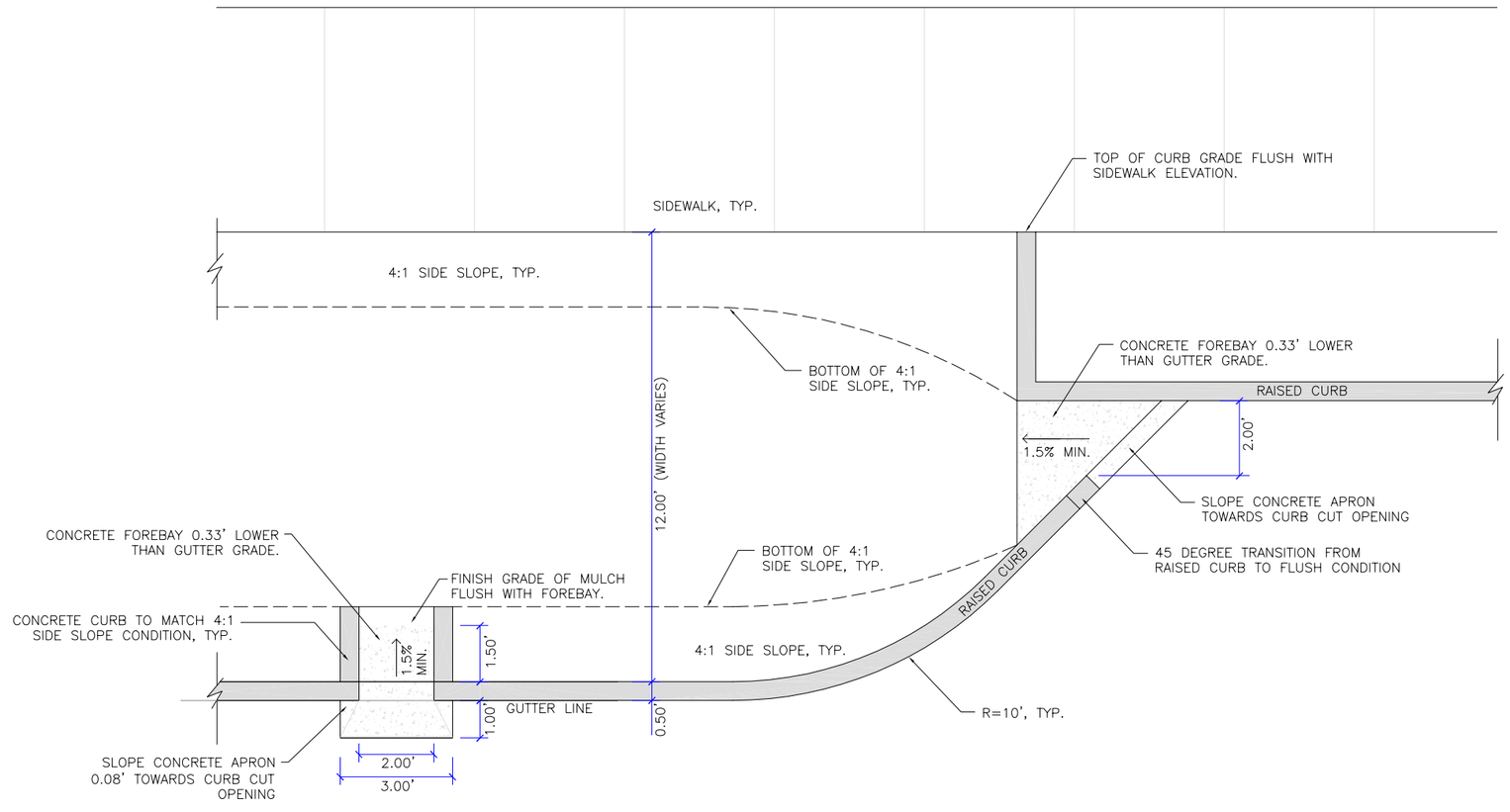
SW - 01A



Scale: 1/2" = 1' - 0"

Stormwater Curb Extension Section (No Capture of Landscape Strip)

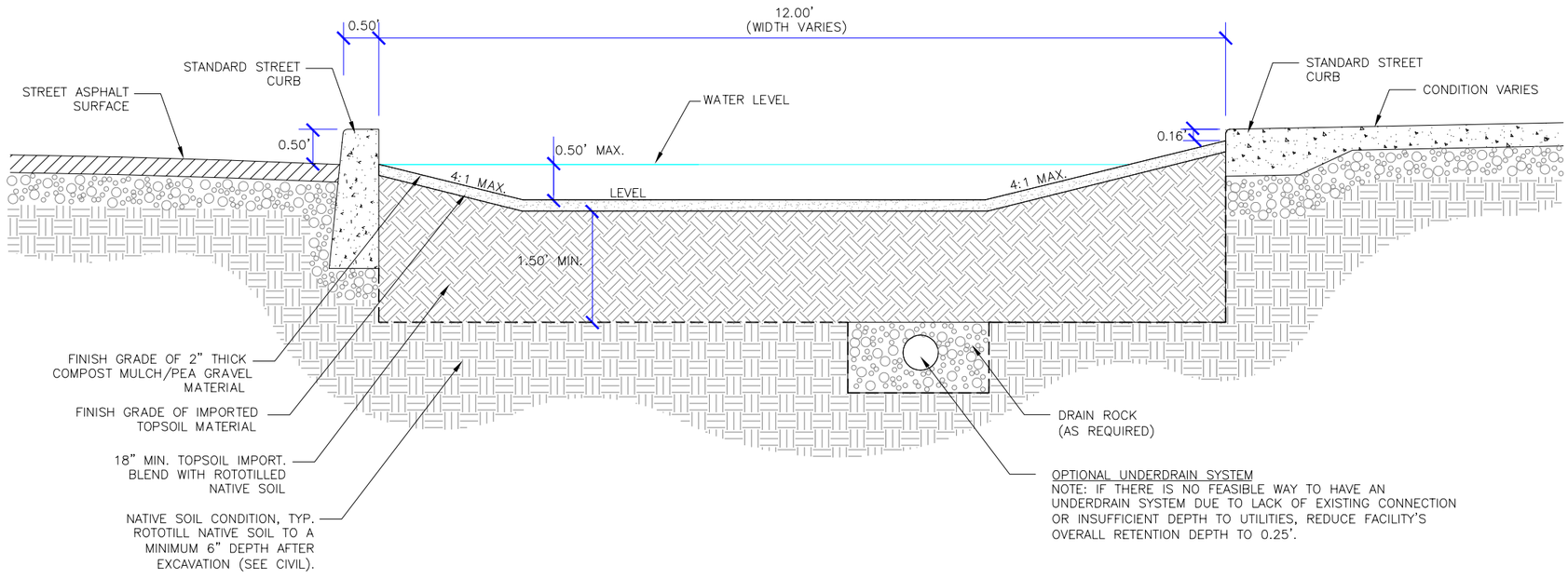
SW - 01B



Scale: 1/4" = 1' - 0"

Stormwater Curb Extension Plan (Capturing Landscape Strip)

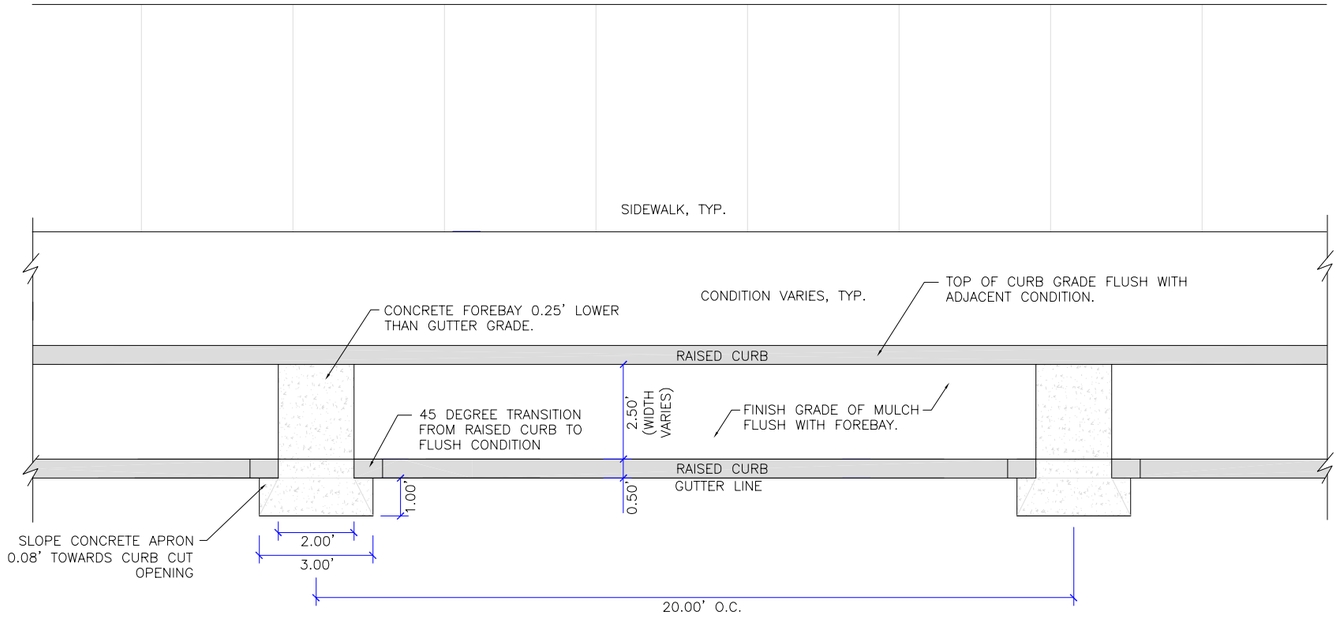
SW - 02A



Scale: 1/2" = 1' - 0"

Stormwater Curb Extension Section (Capturing Landscape Strip)

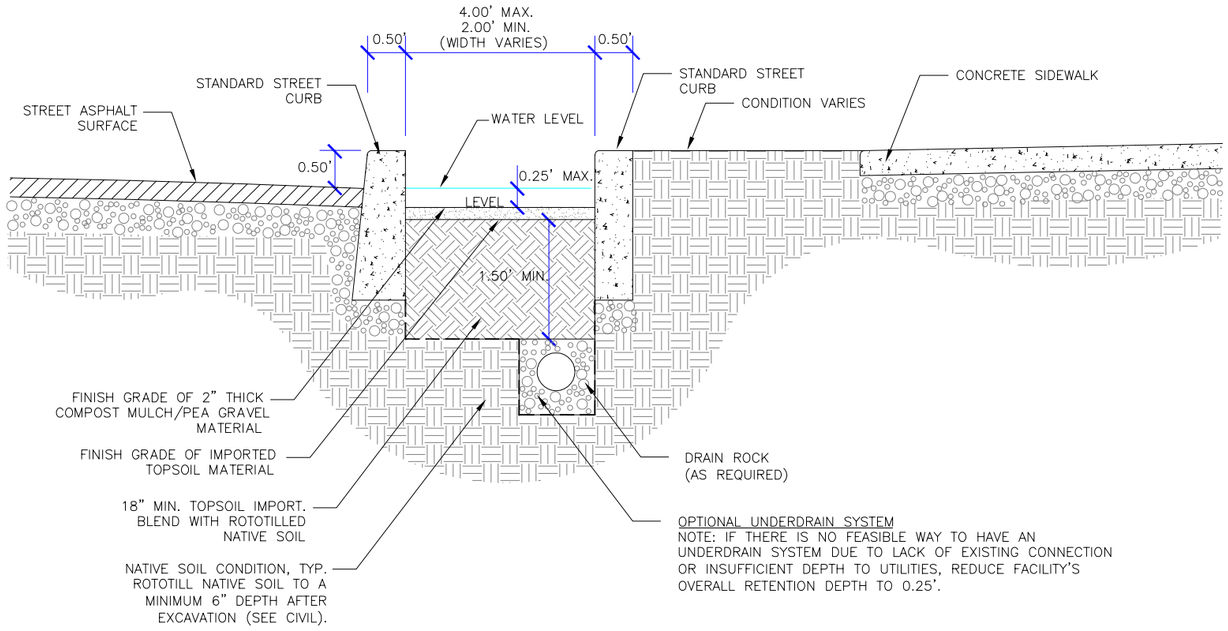
SW - 02B



Scale: 1/4" = 1' - 0"

Green Gutter Plan (With Raised Street Curb)

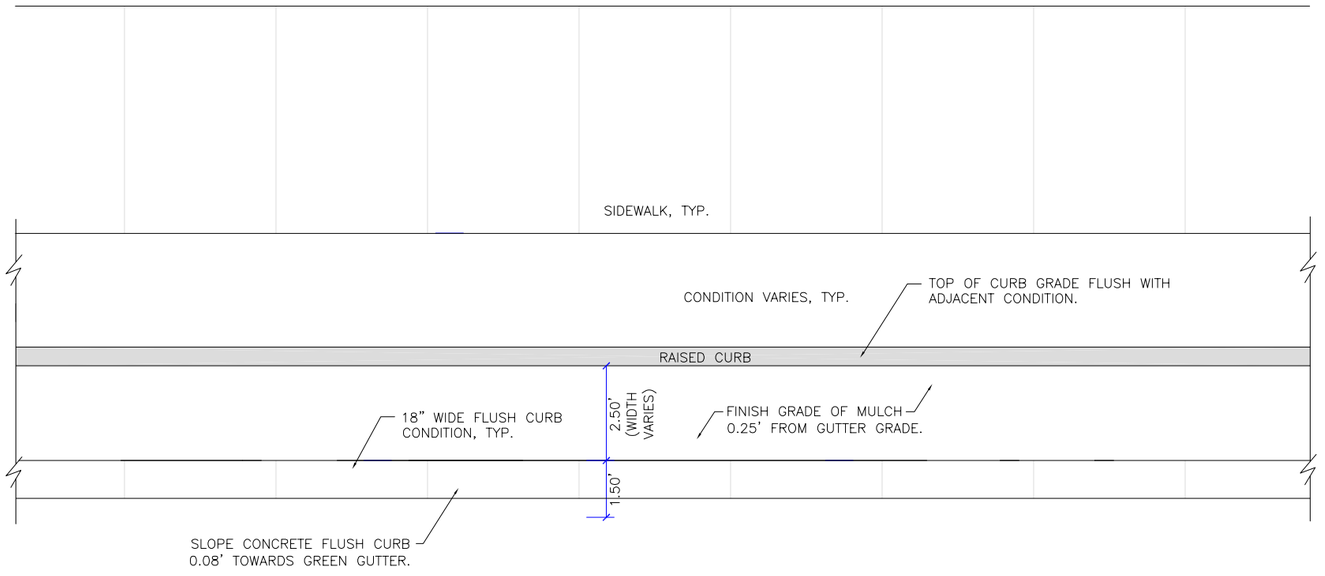
SW - 03A



Scale: 1/2" = 1' - 0"

Green Gutter Section (With Raised Street Curb)

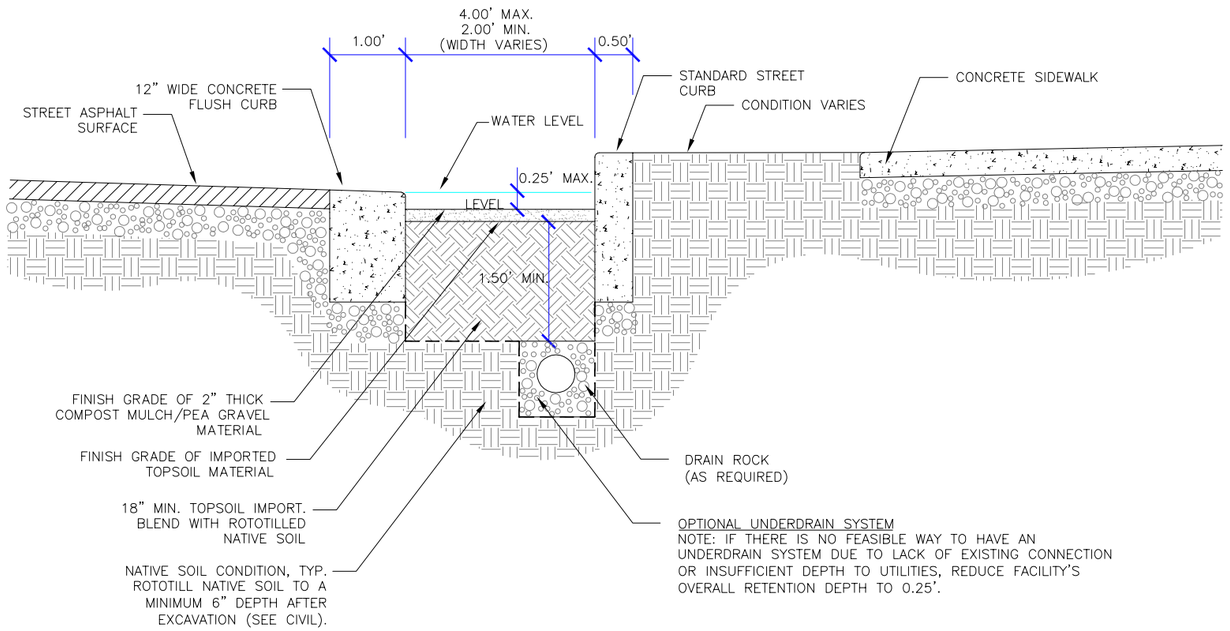
SW - 03B



Scale: 1/4" = 1' - 0"

Green Gutter Plan (With Flush Street Curb)

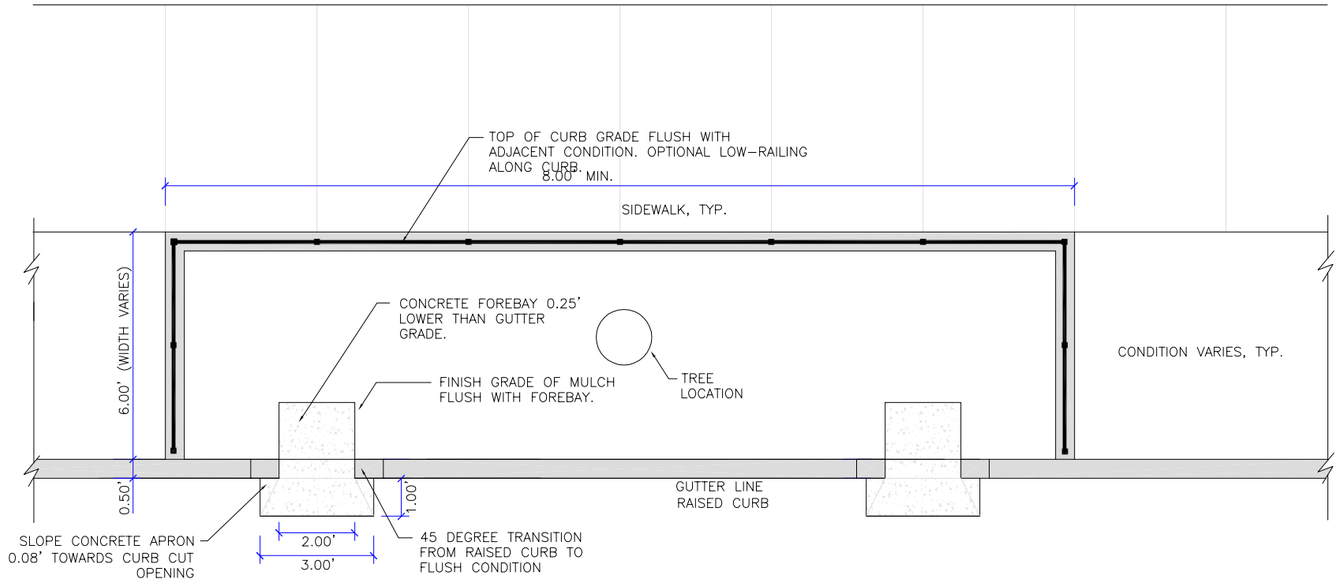
SW - 04A



Scale: 1/2" = 1' - 0"

Green Gutter Section (With Flush Street Curb)

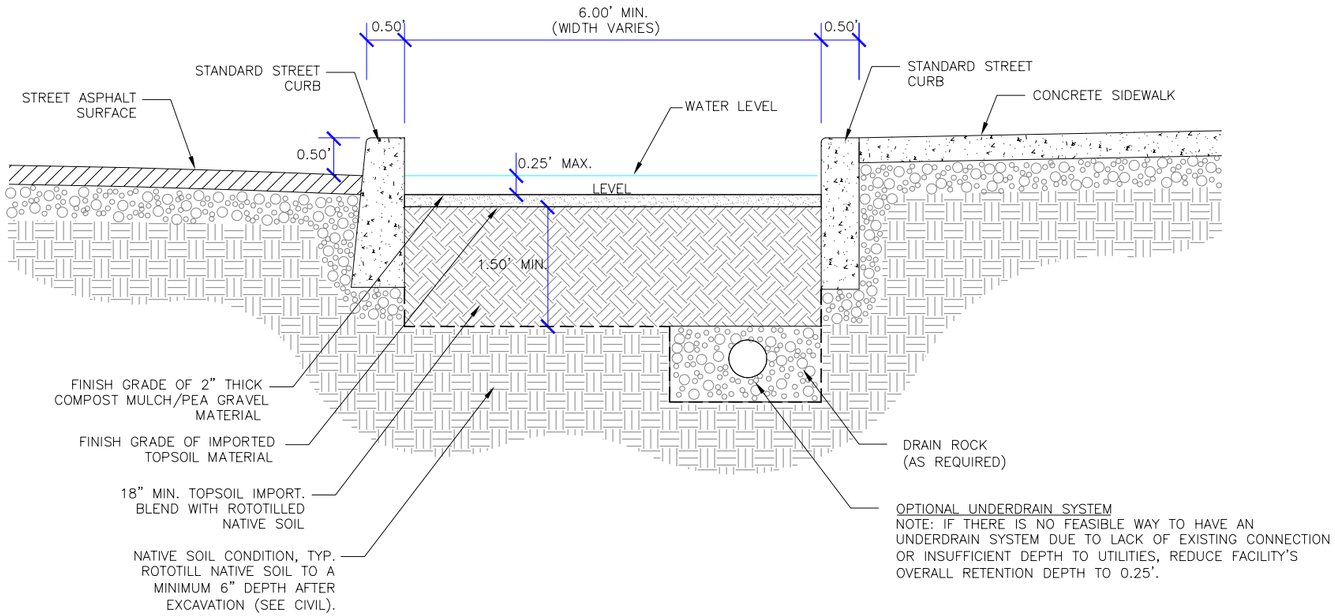
SW - 04B



Scale: 1/4" = 1' - 0"

Street Stormwater Planter Plan (No On-Street Parking)

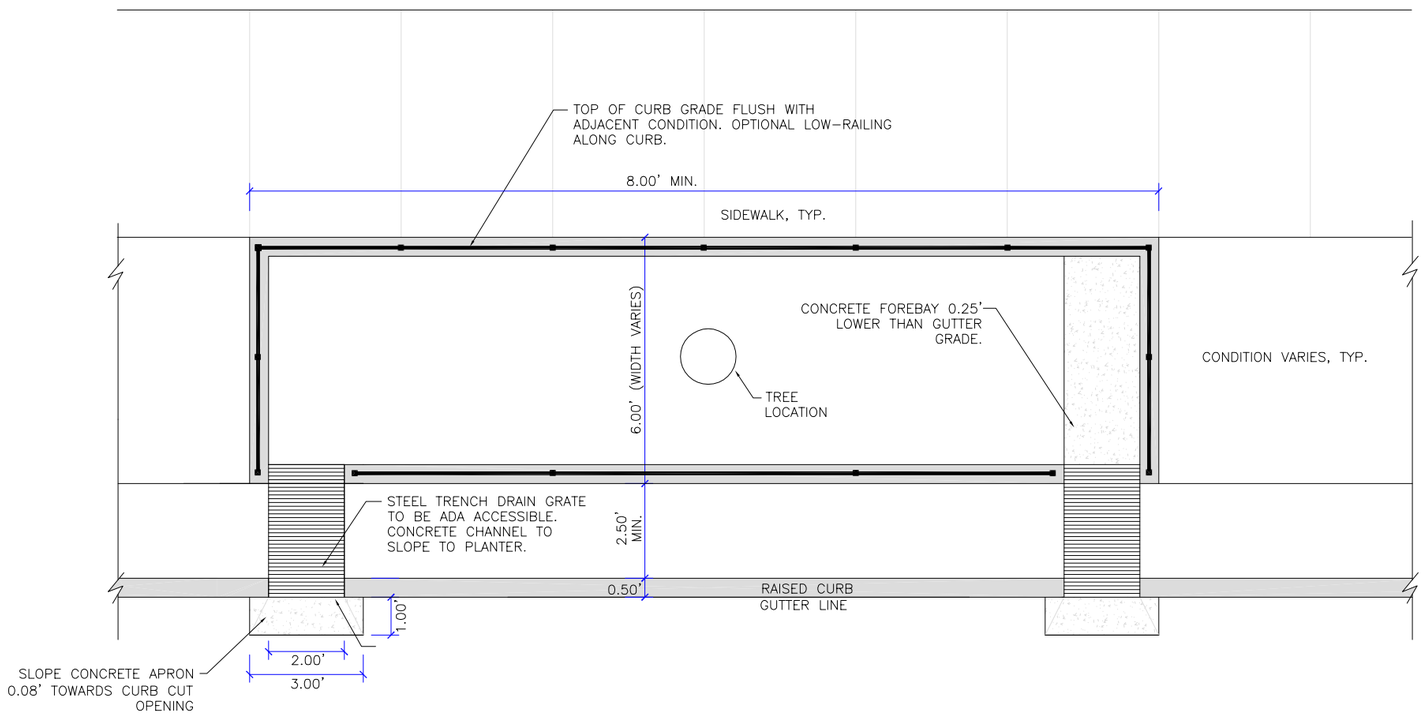
SW - 05A



Scale: 1/2" = 1' - 0"

Street Stormwater Planter Section (No On-Street Parking)

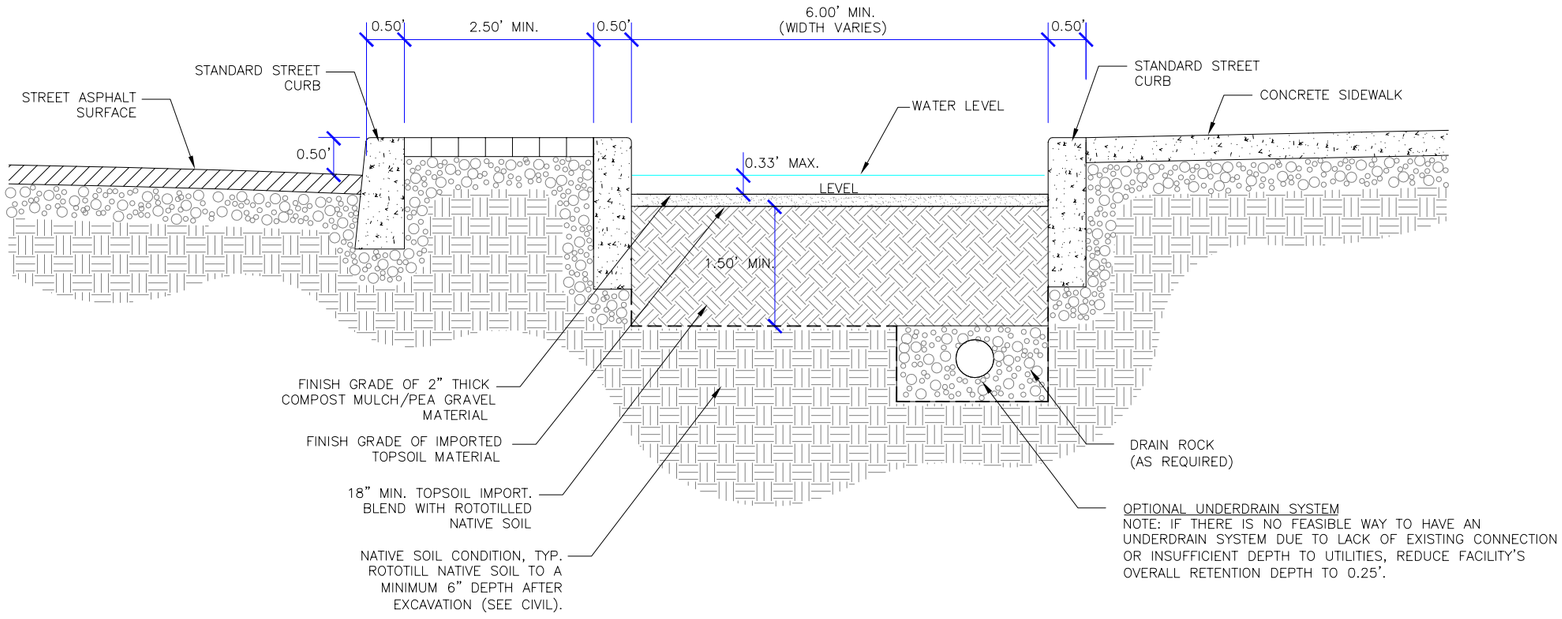
SW - 05B



Scale: 1/4" = 1' - 0"

Street Stormwater Planter Plan (With On-Street Parking)

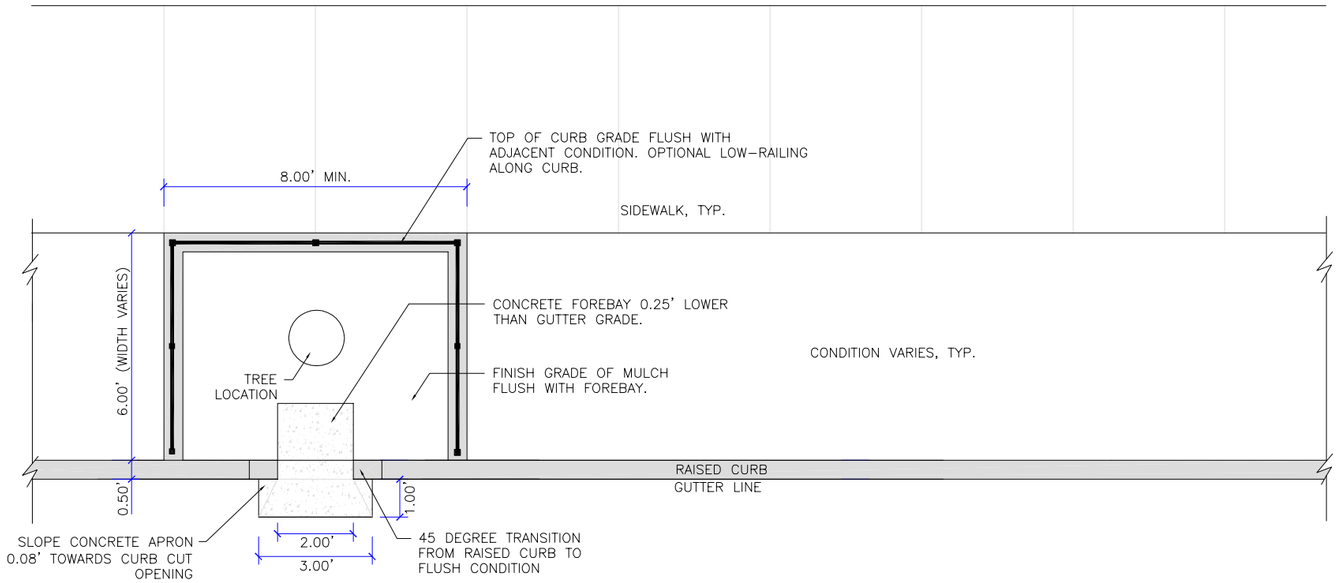
SW - 06A



Scale: 1/2" = 1' - 0"

Street Stormwater Planter Section (With On-Street Parking)

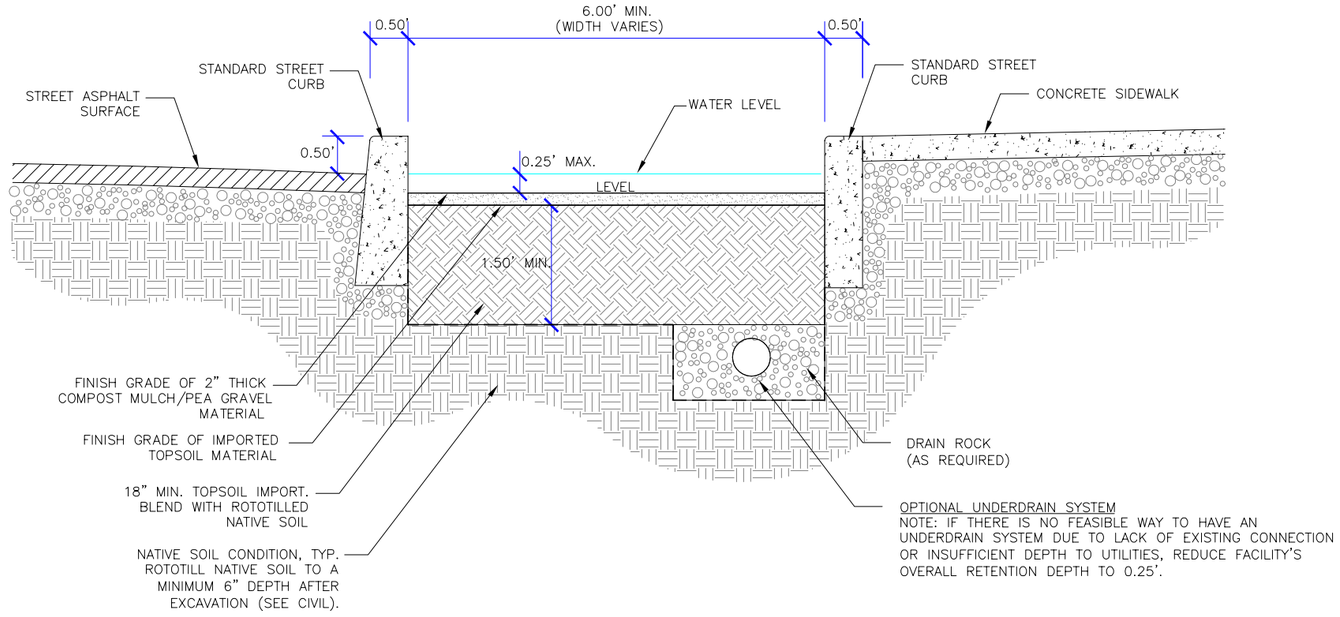
SW - 06B



Scale: 1/4" = 1' - 0"

Tree Pit Planter Plan

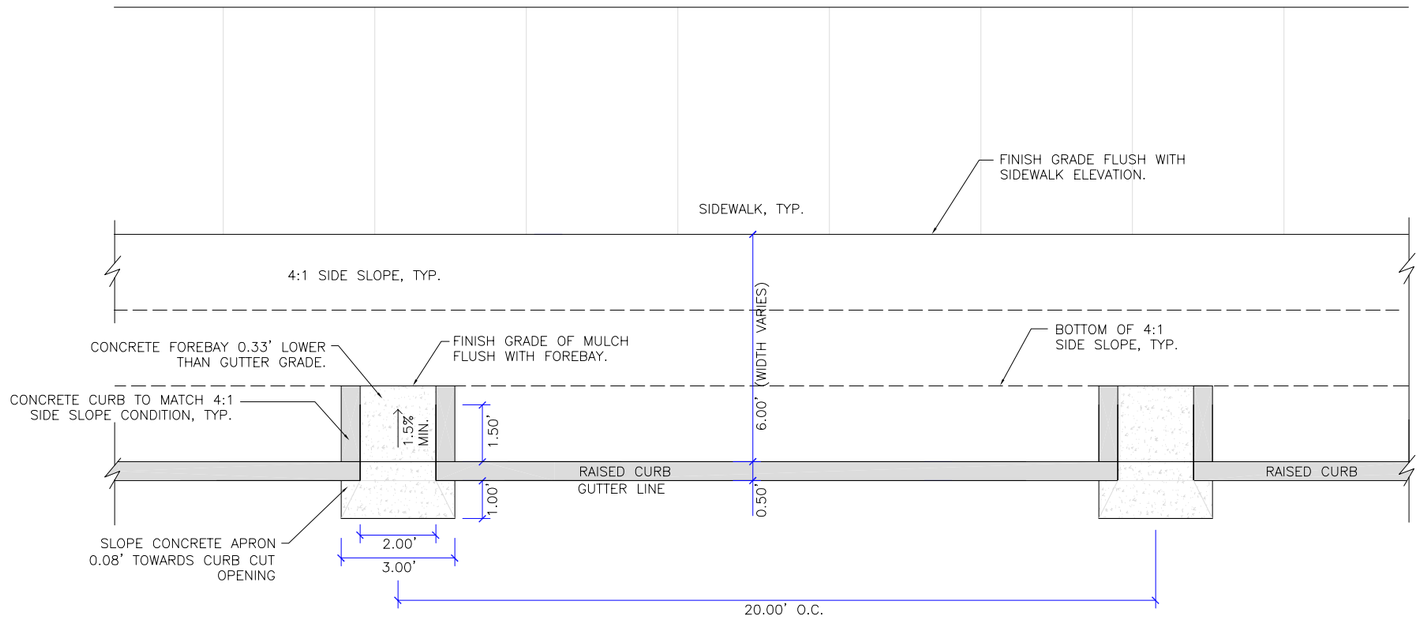
SW - 07A



Scale: 1/2" = 1' - 0"

Tree Pit Planter Section

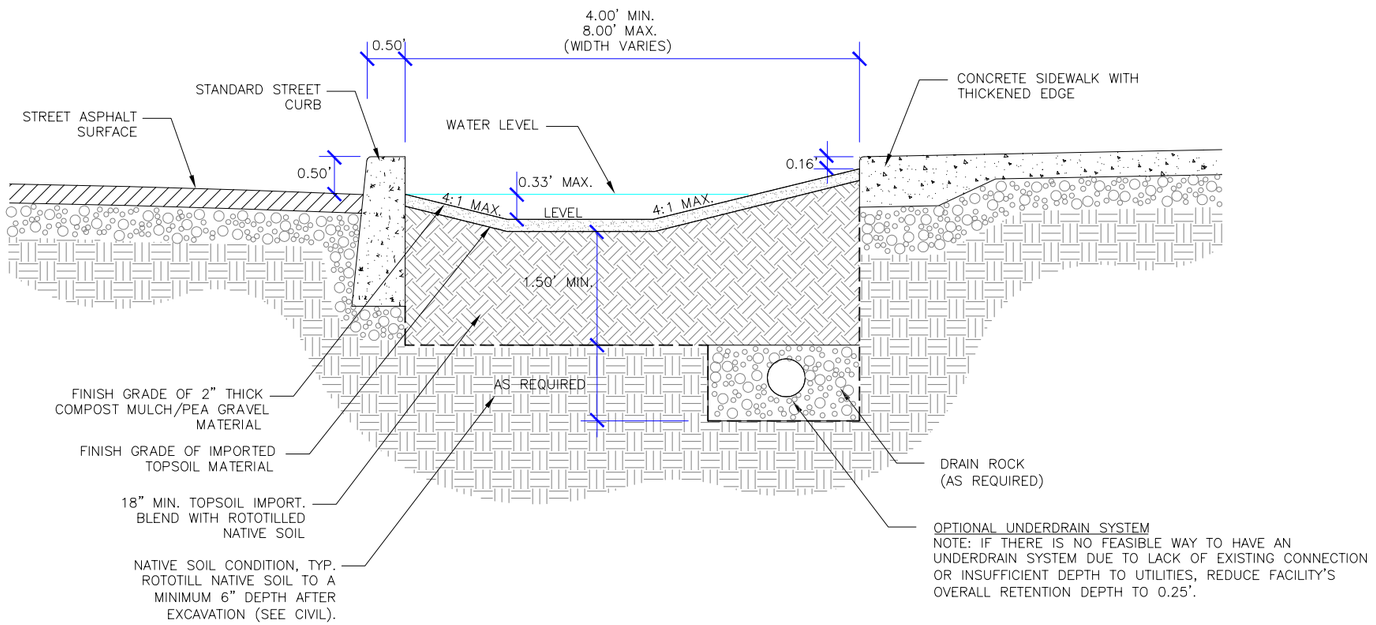
SW - 07B



Scale: 1/4" = 1' - 0"

Vegetated Swale Plan

SW - 08A



Scale: 1/2" = 1' - 0"

Vegetated Swale Section

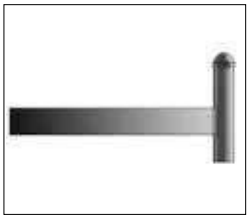
SW - 08B

Lighting Details

SLA8D – Contemporary Arms

TYPE

1. ARM	2. COLOR



SLA8D

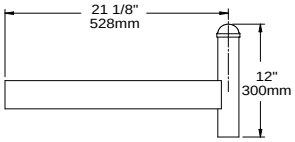
1. ARM

SLA8D *(Bolts to pole. Weight: 5 lbs. EPA: .40)*

2. COLOR

WH	*Arctic White*
BL	*Black*
BLT	*Matte Black*
DB	*Dark Bronze*
DGN	*Dark Green*
TT	*Titanium*
WDB	*Weathered Bronze*
MDB	*Bronze Metallic*
VBU	*Verde Blue*
CRT	*Corten*
MAL	*Matte Aluminum*
MG	*Medium Grey*
AGN	*Antique Green*
LG	*Light Grey*
RAL	*Premium Color*
CUSTOM * *	*Contact Factory*

DIMENSIONS



SLA8D *(4" or 5" pole)*

SPECIFICATIONS

The arms shall be of one piece unitized aluminum construction, fully welded and assembled. The slip fitter shall be cast aluminum with an internal wireway and pole stop. The arm shall be prewired with a quick connector for easy installation.

The arms shall have a cast aluminum fitter welded to the top of the arm(s) for attaching the fixture. The fixture shall be mounted with three stainless steel bolts through the top of the arm fitter into the fixture. The attachment point shall have a silicone pad for sealing the fixture to arm connection.

JOB _____

TYPE _____

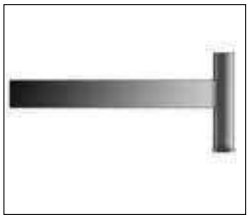
NOTES _____

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

SLA8U – Contemporary Arms

TYPE

1. ARM	2. COLOR



SLA8U

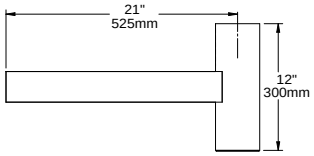
1. ARM

SLA8U *(Bolts to pole. Weight: 5 lbs. EPA: .40)*

2. COLOR

WH	*Arctic White*
BL	*Black*
BLT	*Matte Black*
DB	*Dark Bronze*
DGN	*Dark Green*
TT	*Titanium*
WDB	*Weathered Bronze*
MDB	*Bronze Metallic*
VBU	*Verde Blue*
CRT	*Corten*
MAL	*Matte Aluminum*
MG	*Medium Grey*
AGN	*Antique Green*
LG	*Light Grey*
RAL	*Premium Color*
CUSTOM * *	*Contact Factory*

DIMENSIONS



SLA8U *(4" or 5" pole)*

SPECIFICATIONS

The arms shall be of one piece unitized aluminum construction, fully welded and assembled. The arm shall be prewired with a quick connector for easy installation.

The arm shall bolt to a 4"/100mm diameter pole.

JOB _____

TYPE _____

NOTES _____

ARCHITECTURAL AREA LIGHTING
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SLA20C/SLA20C-2 – Contemporary Arms

TYPE

1. ARM	2. COLOR

SLA20C

1. ARM

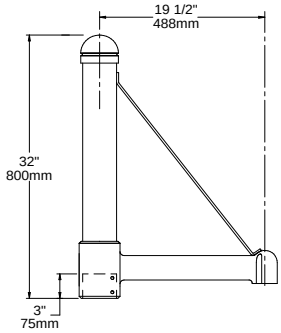
SLA20C *(Slips over 4" pole. Weight: 15 lbs. EPA: 1.39)*

SLA20C-2 *(Twin arms, slips over 4" pole. Weight: 26 lbs. EPA: 1.91)*

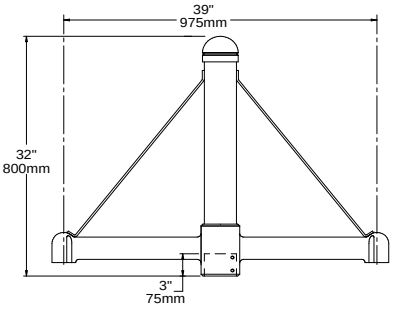
2. COLOR

WH	*Arctic White*	MDB	*Bronze Metallic*
BL	*Black*	VBU	*Verde Blue*
BLT	*Matte Black*	CRT	*Corten*
DB	*Dark Bronze*	MAL	*Matte Aluminum*
DGN	*Dark Green*	MG	*Medium Grey*
TT	*Titanium*	AGN	*Antique Green*
WDB	*Weathered Bronze*	LG	*Light Grey*
		RAL	*Premium Color*
		CUSTOM	* * *Contact Factory*

DIMENSIONS



SLA20C *(4" pole)*



SLA20C-2 *(4" pole)*

SPECIFICATIONS

The arm shall be of one piece unitized aluminum construction, fully welded and assembled. The slip fitter shall be cast aluminum with an internal wireway and pole stop. The arm shall be prewired with a quick connector for easy installation.

The arm shall have a cast aluminum fitter welded to the top of the arm(s) for attaching the fixture. The fixture shall be mounted with three stainless steel bolts through the top of the arm fitter into the fixture. The attachment point shall have a silicone pad for sealing the fixture to arm connection.

The arm shall slip over a 4"/100mm or 5"/125mm diameter pole or tenon. The cast aluminum slip fitter shall have six stainless steel cup point set screws for securing the arm to the pole or tenon.

JOB _____

TYPE _____

NOTES _____

ARCHITECTURAL AREA LIGHTING
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P 626.968.5666 | F 626.369.2695 | www.aal.net

SLA17/SLA17(5)/SLA17-2/SLA17(5)-2 – Contemporary Arms

TYPE

1. ARM	2. COLOR

SLA17

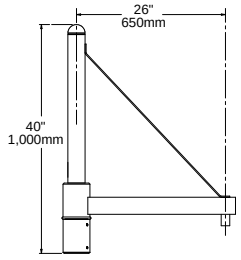
1. ARM

SLA17 *(Slips over 4" pole. Weight: 18 lbs. EPA: 1.50)*
SLA17(5) *(Slips over 5" pole. Weight: 24 lbs. EPA: 2.20)*
SLA17-2 *(Twin arms, slips over 4" pole. Weight: 24 lbs. EPA: 2.05)*
SLA17(5)-2 *(Twin arms, slips over 5" pole . Weight: 33 lbs. EPA: 2.09)*

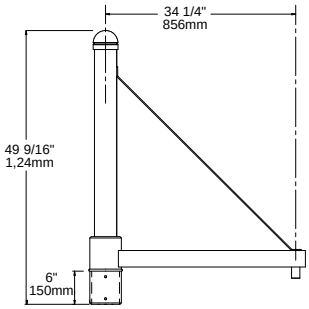
2. COLOR

WH	*Arctic White*	MDB	*Bronze Metallic*
BL	*Black*	VBU	*Verde Blue*
BLT	*Matte Black*	CRT	*Corten*
DB	*Dark Bronze*	MAL	*Matte Aluminum*
DGN	*Dark Green*	MG	*Medium Grey*
TT	*Titanium*	AGN	*Antique Green*
WDB	*Weathered Bronze*	LG	*Light Grey*
		RAL	*Premium Color*
		CUSTOM	* * *Contact Factory*

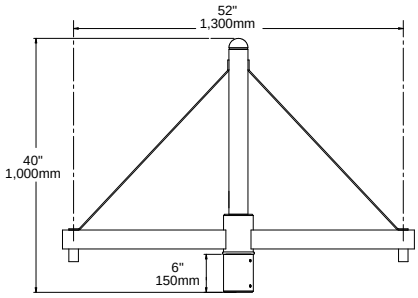
DIMENSIONS



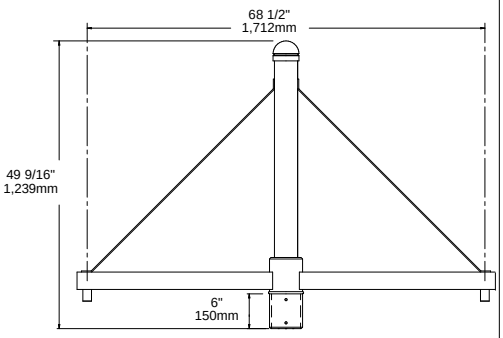
SLA17 *(4" pole)*



SLA17(5) *(5" pole)*



SLA17-2 *(4" pole)*



SLA17(5)-2 *(5" pole)*

SPECIFICATIONS

The arm shall be of one piece unitized aluminum construction, fully welded and assembled. The slip fitter shall be cast aluminum with an internal wireway and pole stop. The arm shall be prewired with a quick connector for easy installation.

The arm shall have a cast aluminum fitter welded to the top of the arm(s) for attaching the fixture. The fixture shall be mounted with three stainless steel bolts through the top of the arm fitter into the fixture. The attachment point shall have a silicone pad for sealing the fixture to arm connection.

The arm shall slip over a 4"/100mm or 5"/125mm diameter pole or tenon. The cast aluminum slip fitter shall have six stainless steel cup point set screws for securing the arm to the pole or tenon.

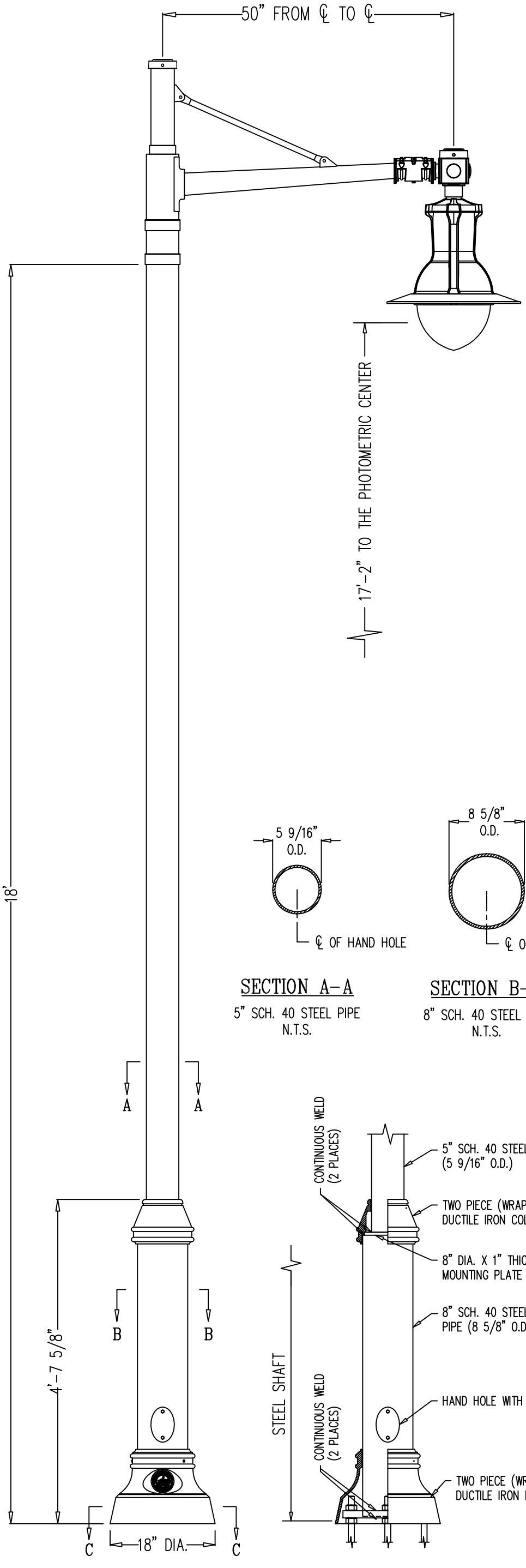
JOB _____

TYPE _____

NOTES _____

architectural arealighting

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net



LOGO DETAIL

N.T.S.

LUMINAIRE SPECIFICATIONS

STYLE:	PEDESTRIAN STYLE COLUMBIA (WITH SPUN ALUMINUM SHADE)
HEIGHT:	26 5/16"
WIDTH:	23" DIAMETER
MATERIAL:	CAST ALUMINUM ALLOY A.N.S.I. 356, PER A.S.T.M. B26-95
GLOBE:	RIBBED GLASS
FINISH:	POWDER COAT - RIVER TEXTURE BLACK
LAMPING:	40 WATT LED
VOLTAGE:	ELECTRONICALLY WIRED AT 120-277 VOLTS
COLOR TEMPERATURE:	3000K (WARM WHITE)
DISTRIBUTION:	TYPE II/III (ASYMMETRIC DISTRIBUTION)
MODIFIER:	COLUMBIA LUMINAIRE ADAPTER
CATALOG NO.:	ALMPCL-LE040/EVX/X2-30-CR3-GR10-LACLB-CU

CROSS ARM SPECIFICATIONS

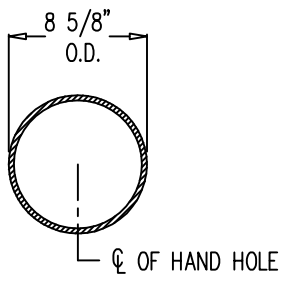
STYLE:	VERMONT CROSS ARM
HEIGHT:	34 7/8"
WIDTH:	50" FROM ℄ OF POLE TO ℄ OF LUMINAIRE
MATERIAL:	ALUMINUM PIPE W/CAST ALUMINUM ORNAMENTATION
FINISH:	POWDER COAT - RIVER TEXTURE BLACK
TENON:	2" THREADED PIPE
CATALOG NO.:	AARVRT-1S-50-TN2.00/NPT-CU

LAMP POST SPECIFICATIONS

STYLE:	CENTER CITY WITH STEEL SHAFT ASSEMBLY
HEIGHT:	18'
PHOTOMETRIC CENTER:	17'-2"
BASE:	18" DIAMETER
MATERIAL:	
SHAFT:	8" SCH 40 STEEL PIPE PEDESTAL (8 5/8" O.D.) 5" SCH 40 STEEL PIPE SHAFT (5 9/16" O.D.)
ORNAMENTATION:	(2) TWO PIECE WRAP AROUND CASTINGS, CAST DUCTILE IRON PER A.S.T.M. A536-84, GRADE 65-45-12
FINISH:	GALVANIZED STEEL THEN POWDER COAT - RIVER TEXTURE BLACK
ACCESS DOOR:	SECURED WITH 1/4-20 HEX HEAD BOLT (18-8)
GROUND PROVISIONS:	1/4"-20 UL LISTED GROUND STUD LOCATED OPPOSITE HANDHOLE (SUPPLIED BY SPRING CITY)
ANCHOR BOLTS:	(4) 1" DIA. X 30" + 4" HOOK (FULLY GALVANIZED WITH 2 GALVANIZED NUTS AND 2 GALVANIZED WASHERS PER BOLT)
BOLT PROJECTION:	3" REQUIRED
TENON:	4 1/2" DIA X 9" HIGH (TO EXCEPT CROSS ARM)
CATALOG NO.:	SPSCCD-SC4-18-18.00-TN4.50/9.00-CU

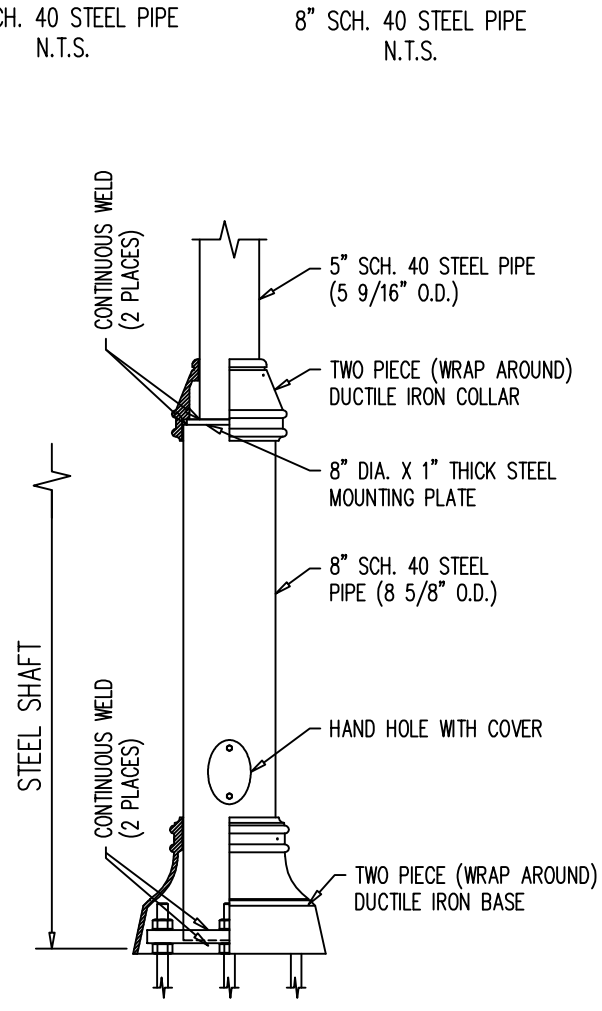
SECTION A-A

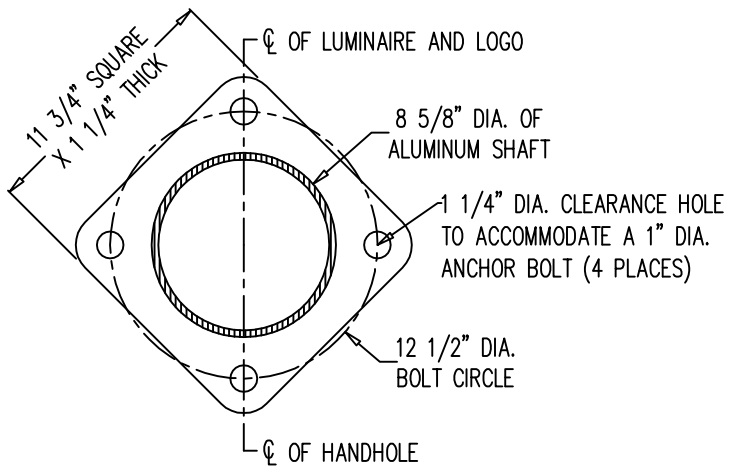
5" SCH. 40 STEEL PIPE
N.T.S.



SECTION B-B

8" SCH. 40 STEEL PIPE
N.T.S.



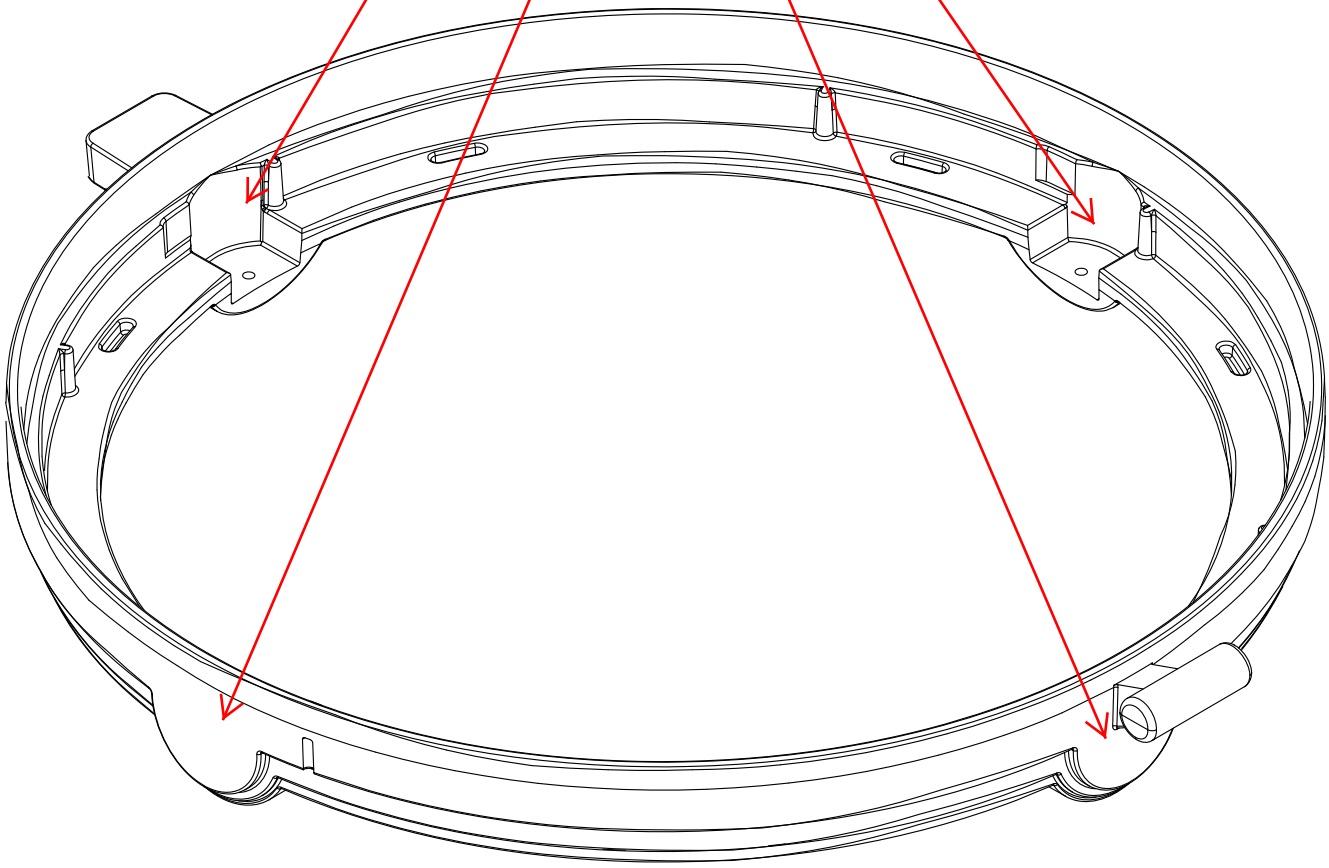


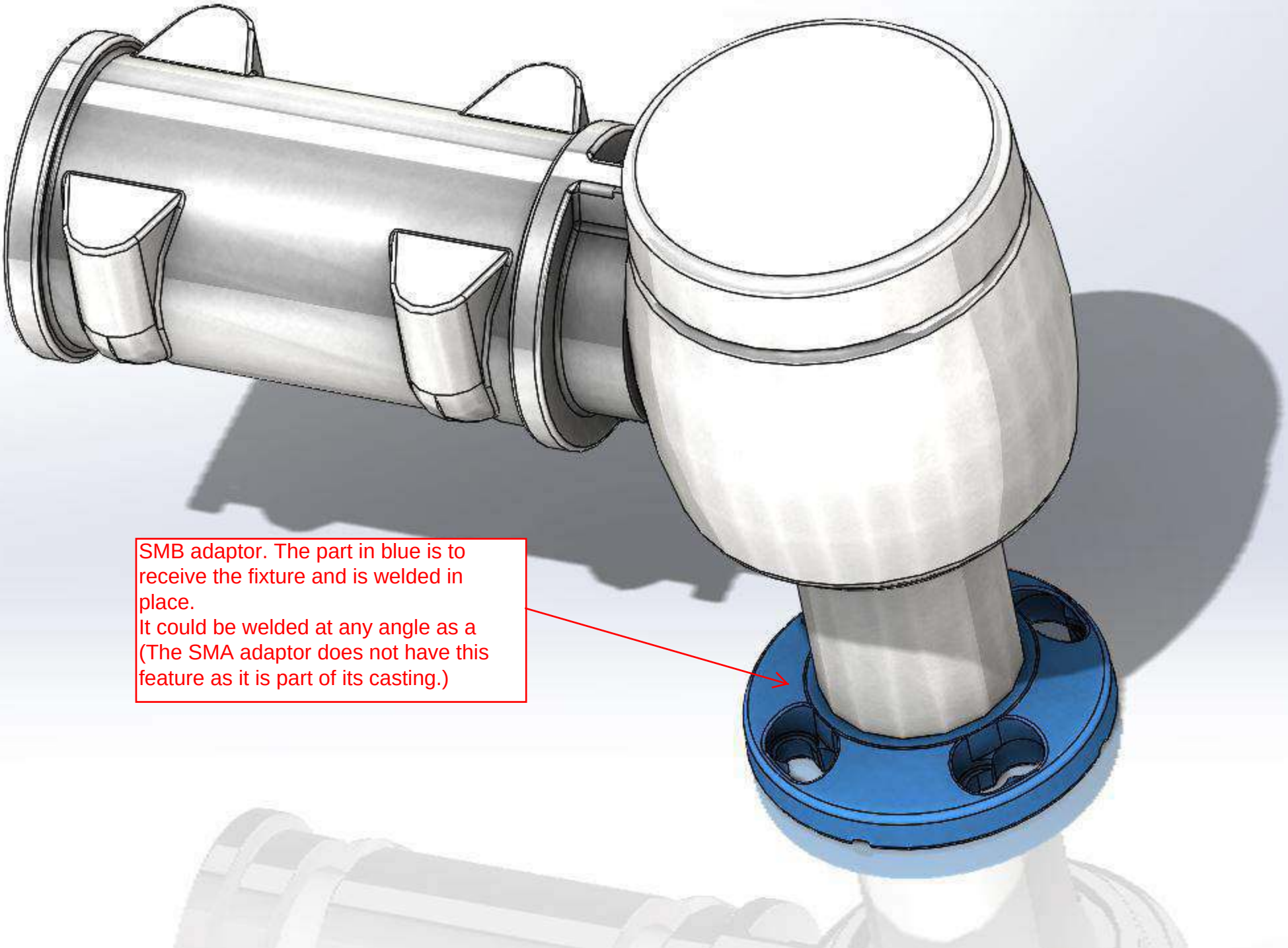
SECTION C-C

N.T.S.

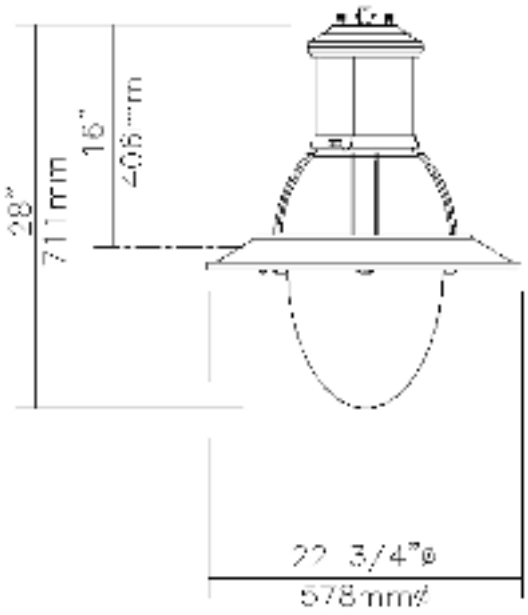
⚠ REVISED BY: T.E.B.			DATE: 11-10-17
Spring City Electrical Mfg. Co. HALL AND MAIN STREETS - P.O. BOX 19 - SPRING CITY, PA. 19475 PHONE (610) 948-4000 - FAX (610) 948-5577 - WWW.SPRINGCITY.COM			
DESCRIPTION	CENTER CITY STEEL SHAFT POST WITH THE VERMONT CROSS ARM AND COLUMBIA LED LUMINAIRE		
CUSTOMER / JOB	BURLINGTON, VT		
SCALE: N.T.S.	DRAWN BY: T.E.B.	DATE: 4-26-17	DRAWING NO.: S103396

Ring of the RNS20 casted with 4 indentations for the optical system's tabs. Optical System can be rotated in 90° increments.




SMB adaptor. The part in blue is to receive the fixture and is welded in place.
It could be welded at any angle as a (The SMA adaptor does not have this feature as it is part of its casting.)

New York empire lighting 16454: Lumec PC4/RNS (78726)



EPA: 1.43 sq ft / weight: 37 lb (16.8 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

		Type	**1A config**
Qty	**1**	Luminaire	**RNS20-[24W16LED3K-001]-T-ACDR-LE2-120-DMG-DE1-COLTX**

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 16 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), **CRI 80 Typical.**

Optical System: (LE2), IES type II (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

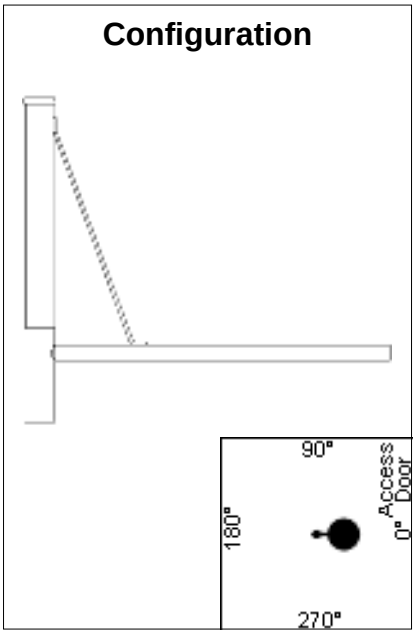
Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

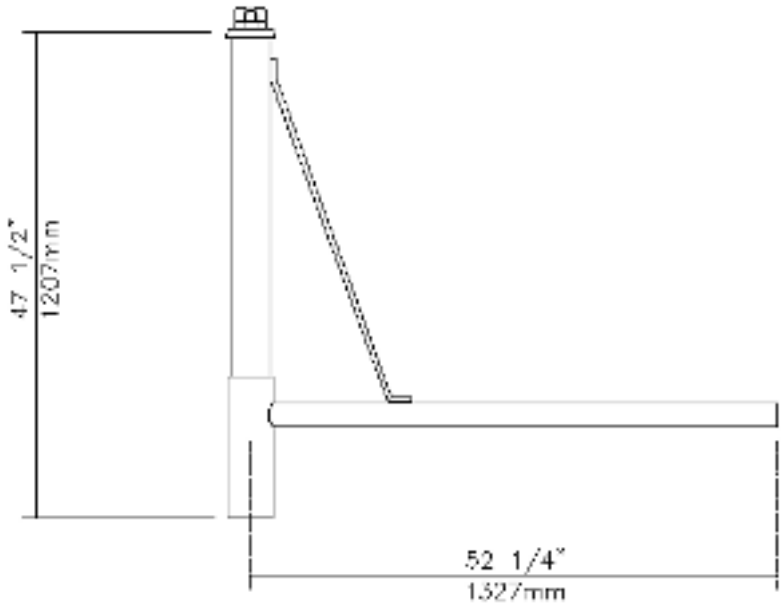
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other*". To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire Options: (DE1), Decorative skirt, made of spun aluminum, mechanically assembled.





		Type	**1A config**
Qty	**1**	Bracket	**[PC-036]-1A-R5 9/16-PH8/120-TD-COLTX**

Description of Components:

Arm: Shall be made from aluminum tubing 6061-T6, 2 3/8" (60mm) outside diameter, welded.

Decorative Element: Bent decorative aluminum rod, 6063-T5 alloy, 1/2" (13mm) outside diameter, welded assembly.

Central Adaptor: Made of aluminum. Slip-fits 9" (229mm) over a 5 9/16" (141mm) outside diameter pole tenon. Mechanically fastened to the pole or tenon by two sets of three set-screws at 120 degrees around the bracket.

Bracket Options: (PH8/120),PH8 twist lock type photocell, 120 volt c/w receptacle. Connection done on site by others. (TD),Straight Tenon.

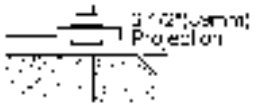
Note: Please note that this arm requires an adaptor to install the fixture.

-**SMB** for standard orientation.

- **(SMB-016)** for 45° orientation from standard.

Bracket Weight: 29 lbs (13.2 kg)

Base & Bolts Information



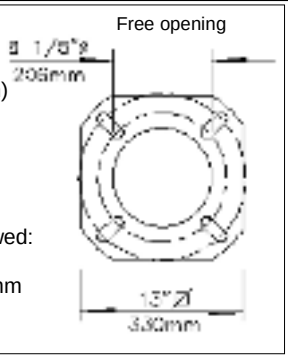
Comes with 4 steel anchor bolts, 1" X 33" + 3" J Type Bolts, 8 nuts and 8 washers. Important: Do not obstruct space between anchor plate and concrete base.

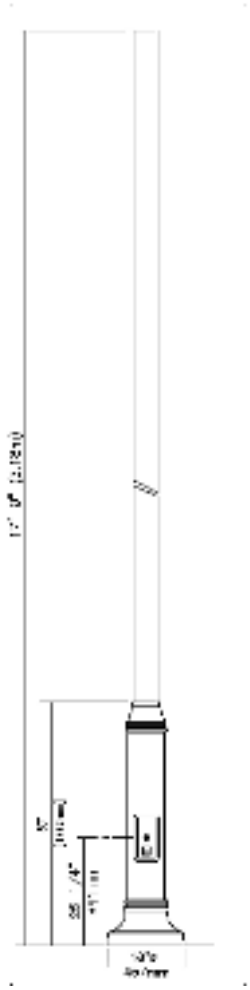
Anchor Plate

-Bolt Circle:
12 1/2" (318mm)

- Thickness:
1"(25mm)

- NOTE:
Bolt Circle Allowed:
11" to 13"
279mm to 330mm





		Type	**1A config**
Qty	**1**	Pole	**SSM8V-17-COLTX**

Description of Components:

Pole Shaft: Shall be made from a 5 9/16" (141mm) round high tensile carbon steel tubing, having a 0.250" (6.4mm) wall thickness, welded to the pole base.

Joint Cover: Two-piece round joint cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Pole Base: Shall be made from a 8 5/8" (219mm) round high tensile carbon steel tubing base having a 0.180" (4.6mm) wall thickness, welded to both the bottom and top of the anchor plate.

Maintenance Opening: The pole shall have a 4 1/2" x 10" (114mm x 254mm) maintenance opening centered 25 1/4" (641mm) from the bottom of the anchor plate, complete with a weatherproof embossed aluminum cover and a copper ground lug.

Base Cover: Two piece round base cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Note: A tenon will be provided when the luminaire or bracket does not fit directly on pole shaft. Tenon not shown on the drawing.

IMPORTANT: Philips Lumec strongly recommends the installation of the complete lighting assembly with all of its accessories upon the anchoring of the pole. This will ensure that the structural integrity of the product is maintained throughout its lifetime.

Pole Weight: 247 lbs (112.3 kg)

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Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding top of the bracket.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Anchor Bolts: Anchor bolts made of ASTM F1554-99 grade A36 or better steel having a minimum yield strength of 55,000 PSI. Nuts made of ASTM A563 grade A steel or better. The thread fit is ANSI class 2B regardless of bolt diameter. Washers are made of ASTM grade F-844 or better steel. All galvanized parts are hot dip galvanized per ACNOR G-164 minimum.

Finish: Textured color to be advised (Product Standard Color only): _____ **(COLTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Note: ***IMPORTANT: All missing details must be clearly specified on the return of these approval drawings. Thank you for your cooperation.***

COLOR:_____

Pole Information: (R5 9/16), Bracket to be mounted on top of a 5 9/16" (141mm) outside diameter round pole or tenon.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Mechanical resistance: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessories and foundation under the given site conditions and intended usage. The addition of any other item to the pole may dramatically impact the wind load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Philips Lumec assumes no responsibility for such complete analysis or product selection. Failure to insure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

Web site information details: Click on any specific information details you need:

Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification / CSA Pole Certification

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K nominal (3045K +/- 175K or 2870K to 3220K)

System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage 2 (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement 3	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED3K-T-LE2	2824	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE3	2802	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE4	2817	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE5	2763	28	0.25	0.15	0.13	0.12	530	70-100	98	B2-U2-G2
30W16LED3K-T-LE2	3552	37	0.32	0.19	0.17	0.15	700	70-100	97	B1-U2-G1
30W16LED3K-T-LE3	3525	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE4	3543	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE5	3484	37	0.32	0.19	0.17	0.15	700	70-100	95	B3-U2-G3
35W32LED3K-T-LE2	3907	36	0.31	0.19	0.17	0.16	350	70-100	109	B1-U2-G1
35W32LED3K-T-LE3	3877	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE4	3897	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE5	3939	36	0.31	0.19	0.17	0.16	350	70-100	109	B3-U2-G3
55W32LED3K-T-LE2	5522	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G1
55W32LED3K-T-LE3	5480	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE4	5508	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE5	5567	53	0.47	0.27	0.24	0.22	530	100-150	104	B3-U3-G3

1 L70 = 100,000 hrs (at ambient temperature = 25°C).

2 System wattage or total luminaire wattage includes the LED module and the LED driver.

3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips Lumec.

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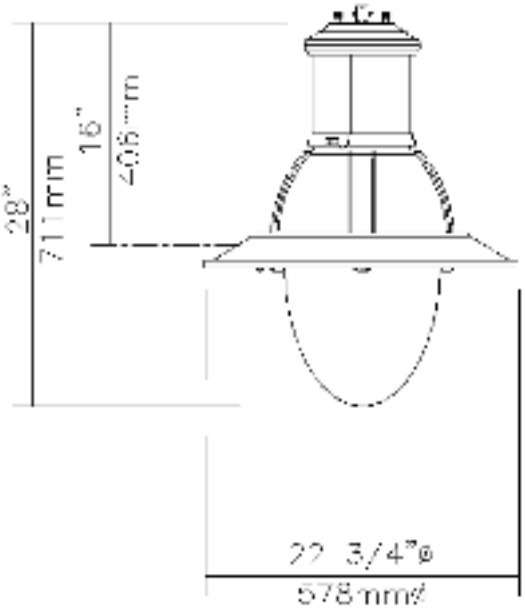
New York empire lighting 16454: Lumec PC4/RNS (78726)



EPA: 1.43 sq ft / weight: 37 lb (16.8 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

		Type	**1 arm**
Qty	**1**	Luminaire	**RNS20-[55W32LED3K-003]-T-ACDR-LE2-120-DMG-DE1-COLTX**

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 32 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), **CRI 80 Typical.**

Optical System: (LE2), IES type II (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

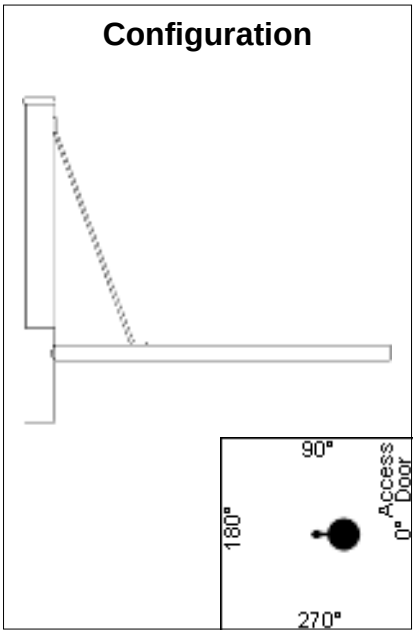
Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

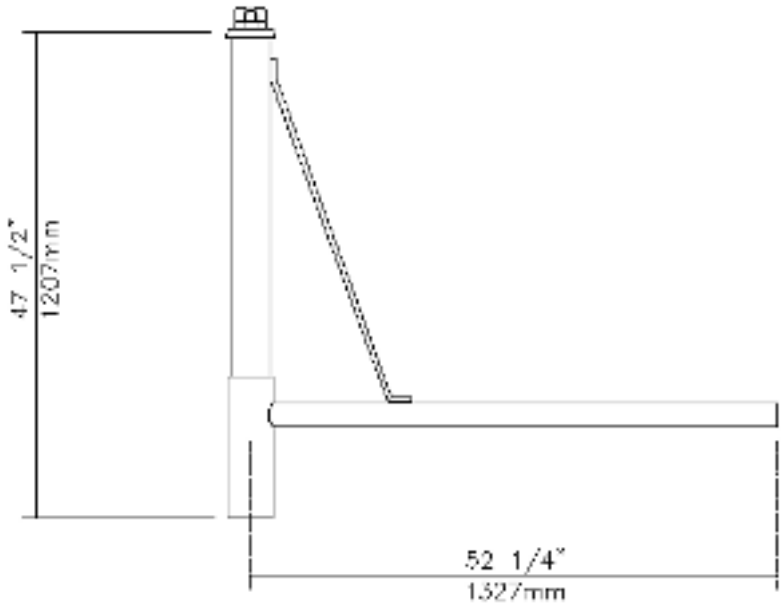
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other*". To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire Options: (DE1), Decorative skirt, made of spun aluminum, mechanically assembled.





		Type	**1 arm**
Qty	**1**	Bracket	**[PC-036]-1A-R5 9/16-PH8/120-TD-COLTX**

Description of Components:

Arm: Shall be made from aluminum tubing 6061-T6, 2 3/8" (60mm) outside diameter, welded.

Decorative Element: Bent decorative aluminum rod, 6063-T5 alloy, 1/2" (13mm) outside diameter, welded assembly.

Central Adaptor: Made of aluminum. Slip-fits 9" (229mm) over a 5 9/16" (141mm) outside diameter pole tenon. Mechanically fastened to the pole or tenon by two sets of three set-screws at 120 degrees around the bracket.

Bracket Options: (PH8/120),PH8 twist lock type photocell, 120 volt c/w receptacle. Connection done on site by others. (TD),Straight Tenon.

Note: Please note that this arm requires an adaptor to install the fixture.

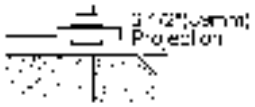
-**SMB** for standard orientation.

- **(SMB-016)** for 45° orientation from standard.

Bracket Weight: 29 lbs (13.2 kg)

New York empire lighting 16454: Lumec PC4/RNS (78726)

Base & Bolts Information



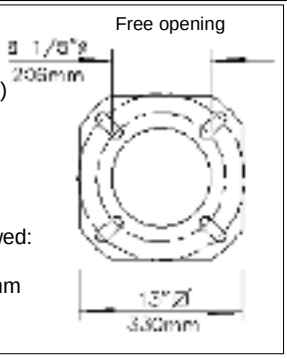
Comes with 4 steel anchor bolts, 1" X 33" + 3" J Type Bolts, 8 nuts and 8 washers. Important: Do not obstruct space between anchor plate and concrete base.

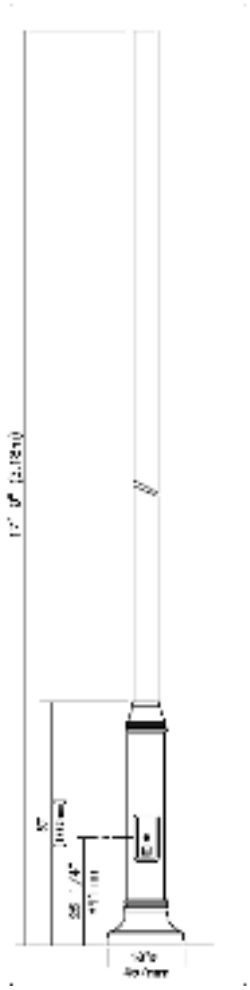
Anchor Plate

-Bolt Circle:
12 1/2" (318mm)

- Thickness:
1"(25mm)

- NOTE:
Bolt Circle Allowed:
11" to 13"
279mm to 330mm





		Type	**1 arm**
Qty	**1**	Pole	**SSM8V-17-COLTX**

Description of Components:

Pole Shaft: Shall be made from a 5 9/16" (141mm) round high tensile carbon steel tubing, having a 0.250" (6.4mm) wall thickness, welded to the pole base.

Joint Cover: Two-piece round joint cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Pole Base: Shall be made from a 8 5/8" (219mm) round high tensile carbon steel tubing base having a 0.180" (4.6mm) wall thickness, welded to both the bottom and top of the anchor plate.

Maintenance Opening: The pole shall have a 4 1/2" x 10" (114mm x 254mm) maintenance opening centered 25 1/4" (641mm) from the bottom of the anchor plate, complete with a weatherproof embossed aluminum cover and a copper ground lug.

Base Cover: Two piece round base cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Note: A tenon will be provided when the luminaire or bracket does not fit directly on pole shaft. Tenon not shown on the drawing.

IMPORTANT: Philips Lumec strongly recommends the installation of the complete lighting assembly with all of its accessories upon the anchoring of the pole. This will ensure that the structural integrity of the product is maintained throughout its lifetime.

Pole Weight: 247 lbs (112.3 kg)

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Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding top of the bracket.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Anchor Bolts: Anchor bolts made of ASTM F1554-99 grade A36 or better steel having a minimum yield strength of 55,000 PSI. Nuts made of ASTM A563 grade A steel or better. The thread fit is ANSI class 2B regardless of bolt diameter. Washers are made of ASTM grade F-844 or better steel. All galvanized parts are hot dip galvanized per ACNOR G-164 minimum.

Finish: Textured color to be advised (Product Standard Color only): _____ **(COLTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Note: ***IMPORTANT: All missing details must be clearly specified on the return of these approval drawings. Thank you for your cooperation.***

COLOR:_____

Pole Information: (R5 9/16), Bracket to be mounted on top of a 5 9/16" (141mm) outside diameter round pole or tenon.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Mechanical resistance: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessories and foundation under the given site conditions and intended usage. The addition of any other item to the pole may dramatically impact the wind load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Philips Lumec assumes no responsibility for such complete analysis or product selection. Failure to insure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

Web site information details: Click on any specific information details you need:

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Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification / CSA Pole Certification

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K nominal (3045K +/- 175K or 2870K to 3220K)

System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage 2 (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement 3	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED3K-T-LE2	2824	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE3	2802	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE4	2817	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE5	2763	28	0.25	0.15	0.13	0.12	530	70-100	98	B2-U2-G2
30W16LED3K-T-LE2	3552	37	0.32	0.19	0.17	0.15	700	70-100	97	B1-U2-G1
30W16LED3K-T-LE3	3525	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE4	3543	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE5	3484	37	0.32	0.19	0.17	0.15	700	70-100	95	B3-U2-G3
35W32LED3K-T-LE2	3907	36	0.31	0.19	0.17	0.16	350	70-100	109	B1-U2-G1
35W32LED3K-T-LE3	3877	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE4	3897	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE5	3939	36	0.31	0.19	0.17	0.16	350	70-100	109	B3-U2-G3
55W32LED3K-T-LE2	5522	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G1
55W32LED3K-T-LE3	5480	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE4	5508	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE5	5567	53	0.47	0.27	0.24	0.22	530	100-150	104	B3-U3-G3

1 L70 = 100,000 hrs (at ambient temperature = 25°C).

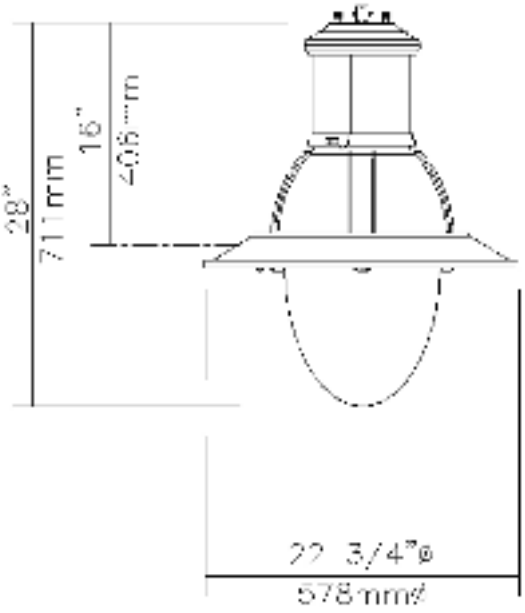
2 System wattage or total luminaire wattage includes the LED module and the LED driver.

3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips Lumec.

PHILIPS LUMEC

New York empire lighting 16454: Lumec PC4/RNS (78726)



EPA: 1.43 sq ft / weight: 37 lb (16.8 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

		Type	**2 config**
Qty	**2**	Luminaire	**RNS20-[55W32LED3K-003]-T-ACDR-LE2-120-DMG-DE1-COLTX**

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 32 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), **CRI 80 Typical.**

Optical System: (LE2), IES type II (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

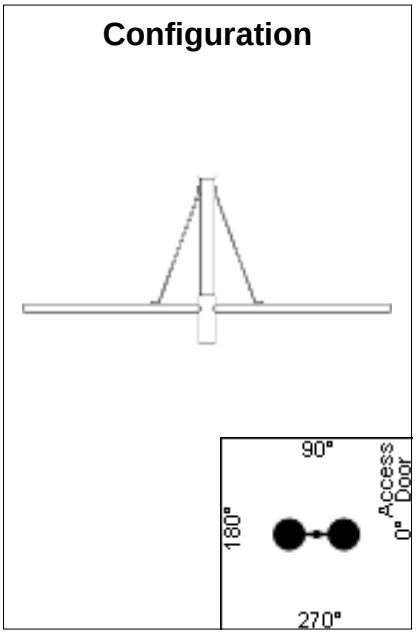
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

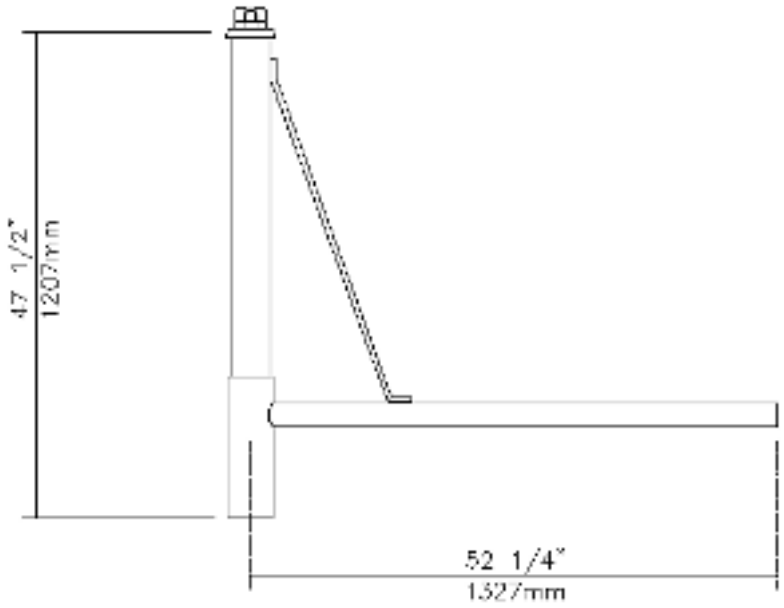
Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other*". To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire Options: (DE1), Decorative skirt, made of spun aluminum, mechanically assembled.

New York empire lighting 16454: Lumec PC4/RNS (78726)





		Type	**2 config**
Qty	**1**	Bracket	**[PC-036]-2-R5 9/16-PH8/120-TD-COLTX**

Description of Components:

Arm: Shall be made from aluminum tubing 6061-T6, 2 3/8" (60mm) outside diameter, welded.

Decorative Element: Bent decorative aluminum rod, 6063-T5 alloy, 1/2" (13mm) outside diameter, welded assembly.

Central Adaptor: Made of aluminum. Slip-fits 9" (229mm) over a 5 9/16" (141mm) outside diameter pole tenon. Mechanically fastened to the pole or tenon by two sets of three set-screws at 120 degrees around the bracket.

Bracket Options: (PH8/120),PH8 twist lock type photocell, 120 volt c/w receptacle. Connection done on site by others. (TD),Straight Tenon.

Note: Please note that this arm requires an adaptor to install the fixture.

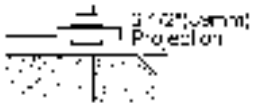
-**SMB** for standard orientation.

- **(SMB-016)** for 45° orientation from standard.

Bracket Weight: 47 lbs (21.4 kg)

New York empire lighting 16454: Lumec PC4/RNS (78726)

Base & Bolts Information



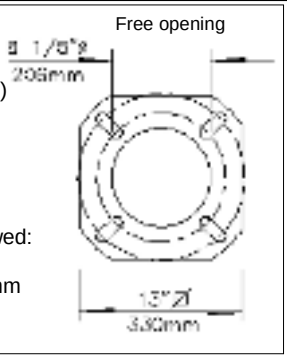
Comes with 4 steel anchor bolts, 1" X 33" + 3" J Type Bolts, 8 nuts and 8 washers. Important: Do not obstruct space between anchor plate and concrete base.

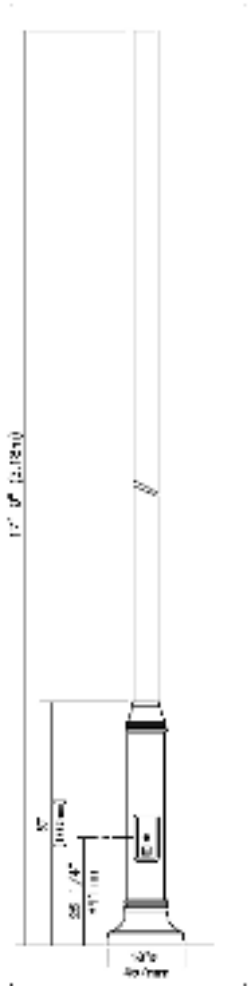
Anchor Plate

-Bolt Circle:
12 1/2" (318mm)

- Thickness:
1"(25mm)

- NOTE:
Bolt Circle Allowed:
11" to 13"
279mm to 330mm





		Type	**2 config**
Qty	**1**	Pole	**SSM8V-17-COLTX**

Description of Components:

Pole Shaft: Shall be made from a 5 9/16" (141mm) round high tensile carbon steel tubing, having a 0.250" (6.4mm) wall thickness, welded to the pole base.

Joint Cover: Two-piece round joint cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Pole Base: Shall be made from a 8 5/8" (219mm) round high tensile carbon steel tubing base having a 0.180" (4.6mm) wall thickness, welded to both the bottom and top of the anchor plate.

Maintenance Opening: The pole shall have a 4 1/2" x 10" (114mm x 254mm) maintenance opening centered 25 1/4" (641mm) from the bottom of the anchor plate, complete with a weatherproof embossed aluminum cover and a copper ground lug.

Base Cover: Two piece round base cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Note: A tenon will be provided when the luminaire or bracket does not fit directly on pole shaft. Tenon not shown on the drawing.

IMPORTANT: Philips Lumec strongly recommends the installation of the complete lighting assembly with all of its accessories upon the anchoring of the pole. This will ensure that the structural integrity of the product is maintained throughout its lifetime.

Pole Weight: 247 lbs (112.3 kg)

Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding top of the bracket.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Anchor Bolts: Anchor bolts made of ASTM F1554-99 grade A36 or better steel having a minimum yield strength of 55,000 PSI. Nuts made of ASTM A563 grade A steel or better. The thread fit is ANSI class 2B regardless of bolt diameter. Washers are made of ASTM grade F-844 or better steel. All galvanized parts are hot dip galvanized per ACNOR G-164 minimum.

Finish: Textured color to be advised (Product Standard Color only): _____ **(COLTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Note: ***IMPORTANT: All missing details must be clearly specified on the return of these approval drawings. Thank you for your cooperation.***

COLOR:_____

Pole Information: (R5 9/16), Bracket to be mounted on top of a 5 9/16" (141mm) outside diameter round pole or tenon.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Mechanical resistance: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessories and foundation under the given site conditions and intended usage. The addition of any other item to the pole may dramatically impact the wind load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Philips Lumec assumes no responsibility for such complete analysis or product selection. Failure to insure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

Web site information details: Click on any specific information details you need:

Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification / CSA Pole Certification

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K nominal (3045K +/- 175K or 2870K to 3220K)

System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage 2 (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement 3	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED3K-T-LE2	2824	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE3	2802	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE4	2817	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE5	2763	28	0.25	0.15	0.13	0.12	530	70-100	98	B2-U2-G2
30W16LED3K-T-LE2	3552	37	0.32	0.19	0.17	0.15	700	70-100	97	B1-U2-G1
30W16LED3K-T-LE3	3525	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE4	3543	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE5	3484	37	0.32	0.19	0.17	0.15	700	70-100	95	B3-U2-G3
35W32LED3K-T-LE2	3907	36	0.31	0.19	0.17	0.16	350	70-100	109	B1-U2-G1
35W32LED3K-T-LE3	3877	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE4	3897	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE5	3939	36	0.31	0.19	0.17	0.16	350	70-100	109	B3-U2-G3
55W32LED3K-T-LE2	5522	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G1
55W32LED3K-T-LE3	5480	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE4	5508	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE5	5567	53	0.47	0.27	0.24	0.22	530	100-150	104	B3-U3-G3

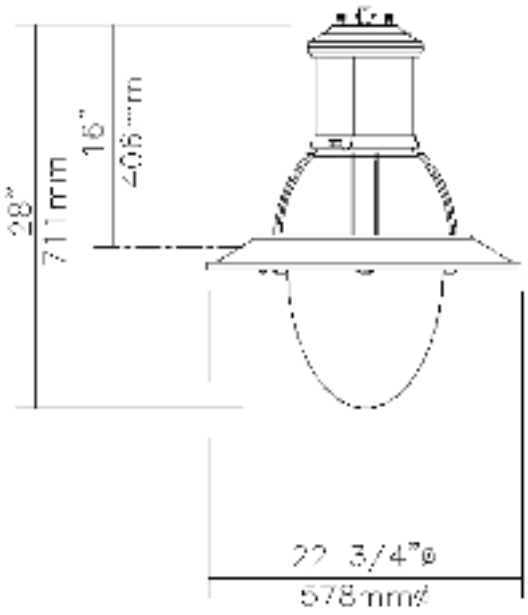
1 L70 = 100,000 hrs (at ambient temperature = 25°C).

2 System wattage or total luminaire wattage includes the LED module and the LED driver.

3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips Lumec.

New York empire lighting 16454: Lumec PC4/RNS (78726)



EPA: 1.43 sq ft / weight: 37 lb (16.8 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

		Type	**2 config**
Qty	**2**	Luminaire	**RNS20-[24W16LED3K-001]-T-ACDR-LE2-120-DMG-DE1-COLTX**

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 16 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), **CRI 80 Typical.**

Optical System: (LE2), IES type II (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

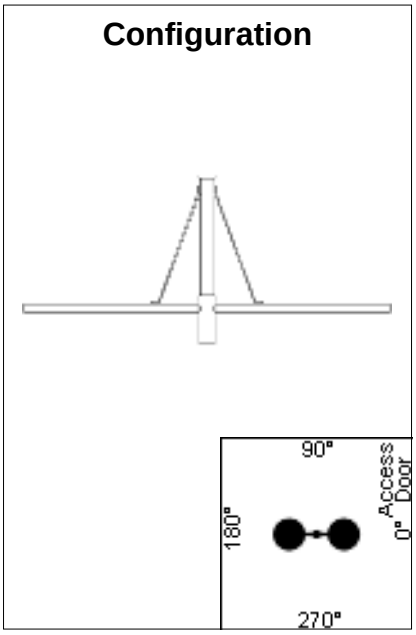
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

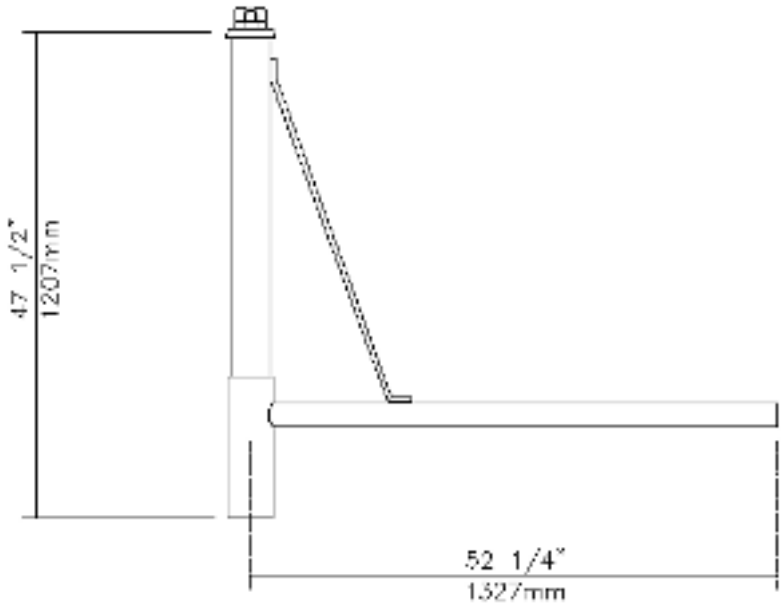
Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other*". To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire Options: (DE1), Decorative skirt, made of spun aluminum, mechanically assembled.

New York empire lighting 16454: Lumec PC4/RNS (78726)





		Type	**2 config**
Qty	**1**	Bracket	**[PC-036]-2-R5 9/16-PH8/120-TD-COLTX**

Description of Components:

Arm: Shall be made from aluminum tubing 6061-T6, 2 3/8" (60mm) outside diameter, welded.

Decorative Element: Bent decorative aluminum rod, 6063-T5 alloy, 1/2" (13mm) outside diameter, welded assembly.

Central Adaptor: Made of aluminum. Slip-fits 9" (229mm) over a 5 9/16" (141mm) outside diameter pole tenon. Mechanically fastened to the pole or tenon by two sets of three set-screws at 120 degrees around the bracket.

Bracket Options: (PH8/120),PH8 twist lock type photocell, 120 volt c/w receptacle. Connection done on site by others. (TD),Straight Tenon.

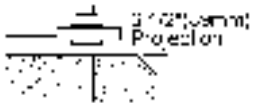
Note: Please note that this arm requires an adaptor to install the fixture.

-**SMB** for standard orientation.

- **(SMB-016)** for 45° orientation from standard.

Bracket Weight: 47 lbs (21.4 kg)

Base & Bolts Information



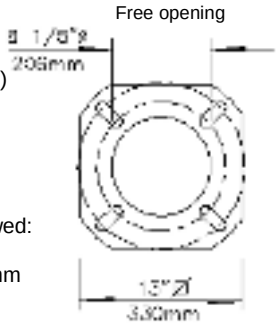
Comes with 4 steel anchor bolts, 1" X 33" + 3" J Type Bolts, 8 nuts and 8 washers. Important: Do not obstruct space between anchor plate and concrete base.

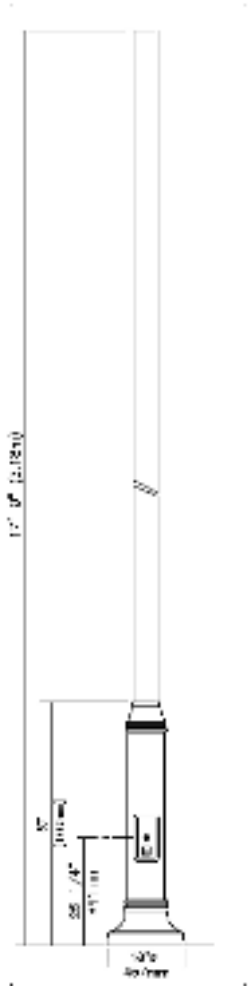
Anchor Plate

-Bolt Circle:
12 1/2" (318mm)

- Thickness:
1"(25mm)

- NOTE:
Bolt Circle Allowed:
11" to 13"
279mm to 330mm





		Type	**2 config**
Qty	**1**	Pole	**SSM8V-17-COLTX**

Description of Components:

Pole Shaft: Shall be made from a 5 9/16" (141mm) round high tensile carbon steel tubing, having a 0.250" (6.4mm) wall thickness, welded to the pole base.

Joint Cover: Two-piece round joint cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Pole Base: Shall be made from a 8 5/8" (219mm) round high tensile carbon steel tubing base having a 0.180" (4.6mm) wall thickness, welded to both the bottom and top of the anchor plate.

Maintenance Opening: The pole shall have a 4 1/2" x 10" (114mm x 254mm) maintenance opening centered 25 1/4" (641mm) from the bottom of the anchor plate, complete with a weatherproof embossed aluminum cover and a copper ground lug.

Base Cover: Two piece round base cover made from cast 356 aluminum, mechanically fastened with stainless steel screws.

Note: A tenon will be provided when the luminaire or bracket does not fit directly on pole shaft. Tenon not shown on the drawing.

IMPORTANT: Philips Lumec strongly recommends the installation of the complete lighting assembly with all of its accessories upon the anchoring of the pole. This will ensure that the structural integrity of the product is maintained throughout its lifetime.

Pole Weight: 247 lbs (112.3 kg)

PHILIPS LUMEC

Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding top of the bracket.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Anchor Bolts: Anchor bolts made of ASTM F1554-99 grade A36 or better steel having a minimum yield strength of 55,000 PSI. Nuts made of ASTM A563 grade A steel or better. The thread fit is ANSI class 2B regardless of bolt diameter. Washers are made of ASTM grade F-844 or better steel. All galvanized parts are hot dip galvanized per ACNOR G-164 minimum.

Finish: Textured color to be advised (Product Standard Color only): _____ **(COLTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Note: ***IMPORTANT: All missing details must be clearly specified on the return of these approval drawings. Thank you for your cooperation.***

COLOR:_____

Pole Information: (R5 9/16), Bracket to be mounted on top of a 5 9/16" (141mm) outside diameter round pole or tenon.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Mechanical resistance: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessories and foundation under the given site conditions and intended usage. The addition of any other item to the pole may dramatically impact the wind load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Philips Lumec assumes no responsibility for such complete analysis or product selection. Failure to insure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

Web site information details: Click on any specific information details you need:

PHILIPS
LUMEC

Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification / CSA Pole Certification

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K nominal (3045K +/- 175K or 2870K to 3220K)

System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage 2 (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement 3	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED3K-T-LE2	2824	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE3	2802	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE4	2817	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE5	2763	28	0.25	0.15	0.13	0.12	530	70-100	98	B2-U2-G2
30W16LED3K-T-LE2	3552	37	0.32	0.19	0.17	0.15	700	70-100	97	B1-U2-G1
30W16LED3K-T-LE3	3525	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE4	3543	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE5	3484	37	0.32	0.19	0.17	0.15	700	70-100	95	B3-U2-G3
35W32LED3K-T-LE2	3907	36	0.31	0.19	0.17	0.16	350	70-100	109	B1-U2-G1
35W32LED3K-T-LE3	3877	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE4	3897	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE5	3939	36	0.31	0.19	0.17	0.16	350	70-100	109	B3-U2-G3
55W32LED3K-T-LE2	5522	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G1
55W32LED3K-T-LE3	5480	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE4	5508	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE5	5567	53	0.47	0.27	0.24	0.22	530	100-150	104	B3-U3-G3

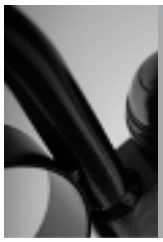
1 L70 = 100,000 hrs (at ambient temperature = 25°C).

2 System wattage or total luminaire wattage includes the LED module and the LED driver.

3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips Lumec.

PHILIPS LUMEC

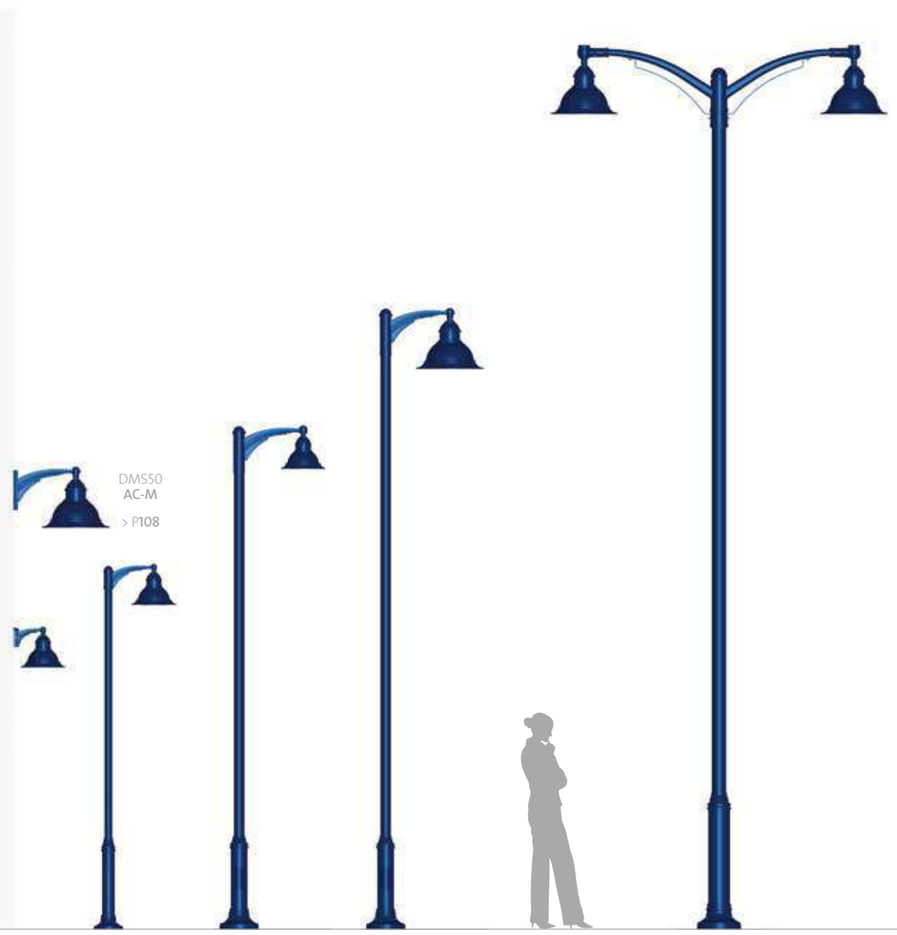


BRACKETS

TECHINAL INFORMATION

PHILIPS

LUMEC



DMS50
AC-M
> P108

DOS
DBC-M
*see domus small series brochure for **DBC** details*

DOS
DBC-1A
AM53V-12
*see domus small series brochure for **DBC** details*

DOS
AC-1A-TS
SM8N-16
> P108

DMS50
AC-1A
SM8N-20
> P108

DMS50-SMB
AC4-2
SSM8-28
> P122

DMS50-SMB
AC4-1A
SSM8V-28-MPL
DOS
AC-F-14-180deg
> P122/108

DMS50-SMB
AC6-1A
SSM8V-28-**PS-ACS**
> P122/137

DMS50-SMB
AC8-1A
SSM8V-28
> P122

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

S55C2
CRC-M
> P**107**

S55C2
CRC-1A
R80F-14
> P**107**

RNS20
AR-1A-RNA
R80F-16
> P**106**

RN20-SMA
AR4-1A
R80A-18-MPL
RNS20
AR-F-12-180deg-RNA
> P**123/106**

RN20-SMA
AR4-2
R92D-27
> P**123**

RN20-SMA
AR4-1A
R92D-27-**PSARS**
> P**123/138**

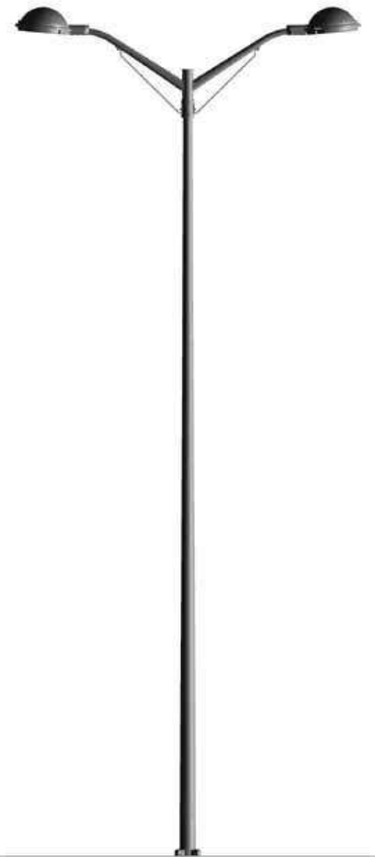
RN20-SMA
AR6-1A
R92D-27
> P**123**

RN20-SMA
AR8-1A
R92D-27
> P**123**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

CTM
YC4-1A
ATR74V-28

> P**124**

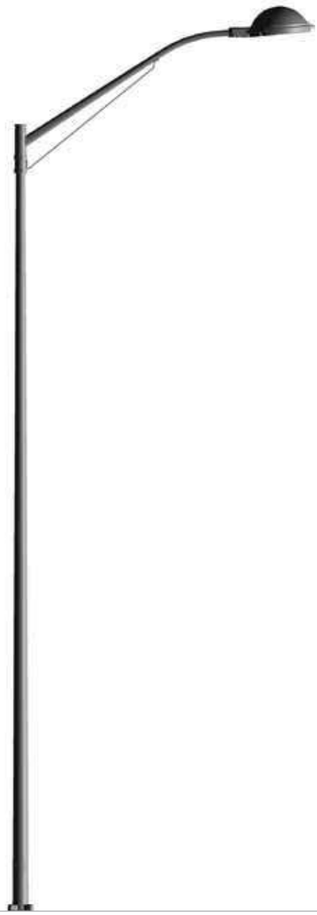


CTM
YC4-2
ATR74V-28

> P**124**

CTM
YC6-1A
ATR74V-28

> P**124**



CTM
YC8-1A
ATR74V-28

> P**124**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

RNS20
YR-M-RNA

> P**106**

S55C2
CRF-1A
R80A-14

> P**106**

RN20-SMA-GRD
YR4-2
RTA608N-28-**PSYRS**

> P**125/138**

RN20-SMA-GRD
YR4-1A
RTA608N-28-MPL
RNS20
YR-F-12-180deg-RNA

> P**125/106**

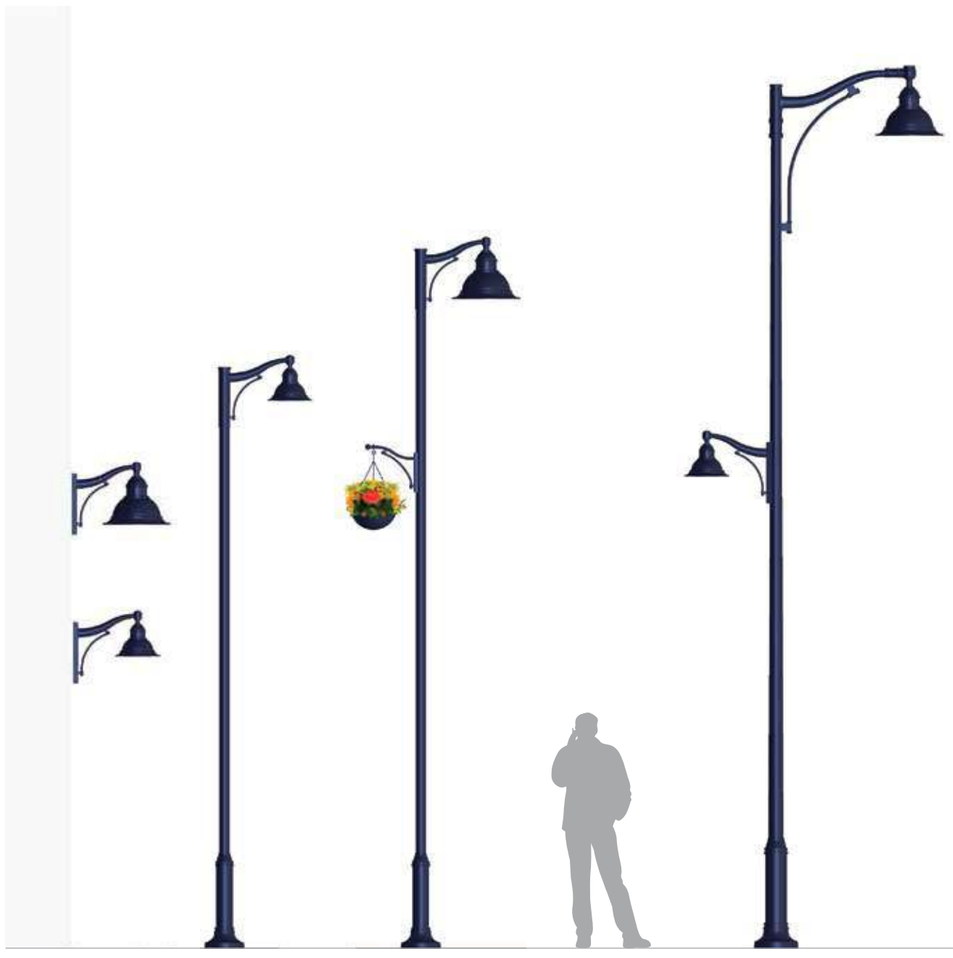
RN20-SMA-GRD
YR6-1A
RTA608N-28

> P**125**

RN20-SMA-GRD
YR8-1A
RTA608N-28

> P**125**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.



DMS50
VC-M
> P**108**

DOS
VC-M-TS
> P**108**

DOS
VC-1A-TS
AM6W-18
> P**108**

DMS50
VC-1A
AM6W-22-**PSVCS**
> P**108/138**

DMS50-SMB
VC4-1A
AMT8V-28-MPL
DOS
VC-F-15-180deg-TS
> P**126/108**

DMS50-SMB
VC4-2
AMT8V-28
> P**126**

DMS50-SMB
VC6-1A
AMT8V-28
> P**126**

DMS50-SMB
VC8-1A
AMT8V-28
> P**126**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

L80
CRF-M
> P**106**

L80
CRF-1A
RA61F-12
> P**106**

RNS20
CRFT-1A-RNA
RA61F-16
> P**107**

RN20
CRFT-1A-RNA
RA61W-18
> P**107**

RN20-SMA
VR4-1A
RSS61V-28-MPL
RNS20
CRFT-F-13-180deg-RNA
> P**127/107**

RN20-SMA
VR4-2
RSS61V-28-**PSCRFD**
> P**127/138**

RN20-SMA
VR6-1A
RSS61V-28-MPL
L80
CRF-F-13-180deg
> P**127/106**

RN20-SMA
VR8-1A
RSS61V-28
> P**127**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

DMS50
PC-M
> P**110**

DOS
PC-M-TS
> P**110**

DOS
DBG-1A
AM53F-12

DMS50
PC-1A
AM8W-20
> P**110**

DOS
PC-1A-TS
AM8W-16
> P**110**

DMS50-SMB
PC4-2
SSM8V-25
> P**128**

DMS50-SMB
PC4-1A
SSM8V-25
+
DOS
PC-F-12-180deg-TS
> P**128/110**

DMS50-SMB
PC6-1A
SSM8V-25
+
PS-PCS
> P**128/137**

DMS50-SMB
PC6-1A
SSM8V-25
> P**128**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

RNS20
CRAT-M-RNA
> P**107**

S55C2
CRA-1A
R80A-16
> P**107**

RN20
CRAT-1A-RNA
R80A-20-**PSCRAS**
> P**107/137**

RN20-SMA
PR4-2
RTA20V-27
> P**129**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

RN20-SMA
PR4-1A
RTA20V-27-MPL
RNS20
CRAT-F-13-180deg-RNA
> P**129/107**

RN20-SMA
PR6-1A
RTA20V-27
> P**129**

RN20-SMA
PR8-1A
RTA20V-27
> P**129**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

RN20-SMA
DR6-1A
R92D-27

> P**121**

RN20-SMA
DR6-2
R92D-27

> P**121**

DMS50-SMB
DC6-1A
SSM8V-25

> P**121**

DMS50-SMB
DC6-2
SSM8V-25

> P**121**

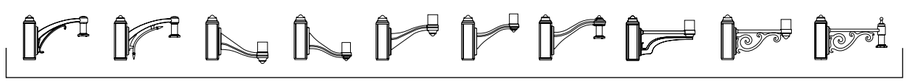
HBM
DC8-1A
SSM8V-25

> P**121**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

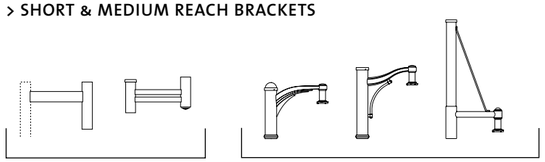
BRACKET INDEX > CONTEMPORARY AND TRADITIONAL BRACKETS

> CAST BRACKETS

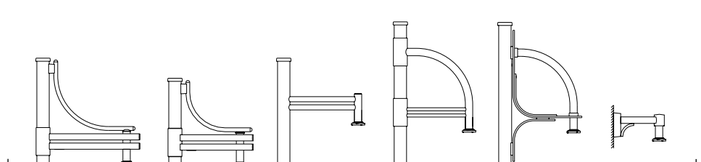


YR P106 | AR P106 | CRD P106 | CRDS P108 | CRF P106 | CRFS P108 | CRFT P107 | CRC P107 | CRA P107 | CRAT P107

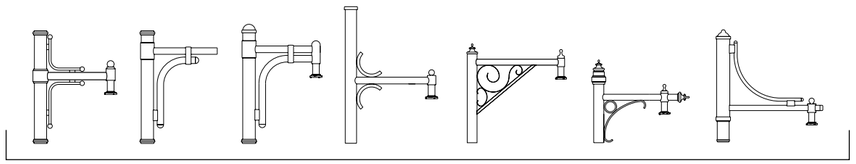
> SHORT & MEDIUM REACH BRACKETS



CR P109 | JR P109 | AC P108 | VC P108 | PC P110

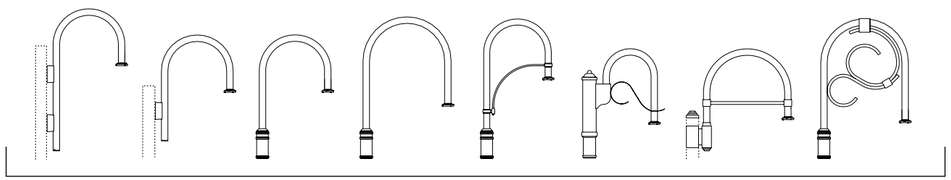


CN1 P110 | CN1S P110 | OM P110 | PM P111 | CN3 P111 | CNB-M P111



MM P112 | MR P112 | MT P112 | UM P112 | CRG P113 | CRH P113 | CRI P113

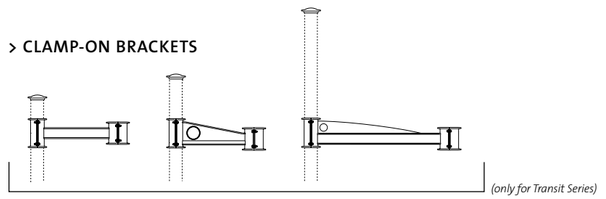
> GOOSE NECK BRACKETS



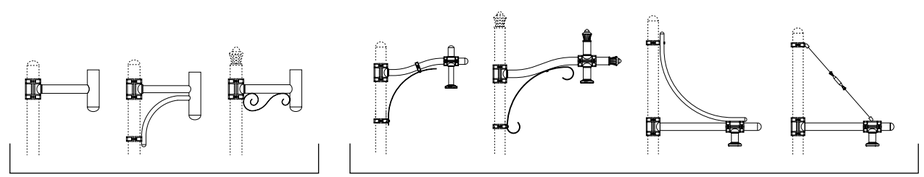
CN5 P114 | IF P114 | SM P114 | MJ P114 | BM P115 | LM P115 | TM P115 | NM P115

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

> CLAMP-ON BRACKETS

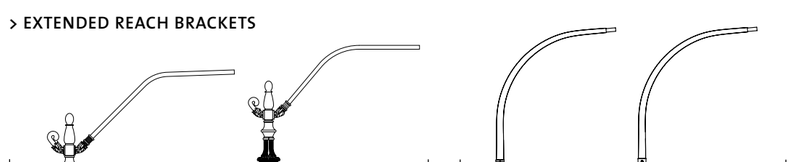


SN P118 | TN P118 | UN P118 *(only for Transit Series)*

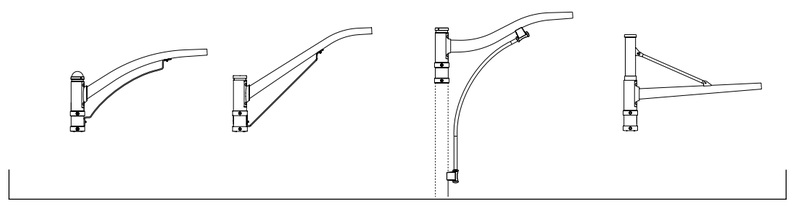


M10 P116 | M30 P116 | M50 P116 | M20H P117 | M20A P117 | M20G P117 | M20M P117

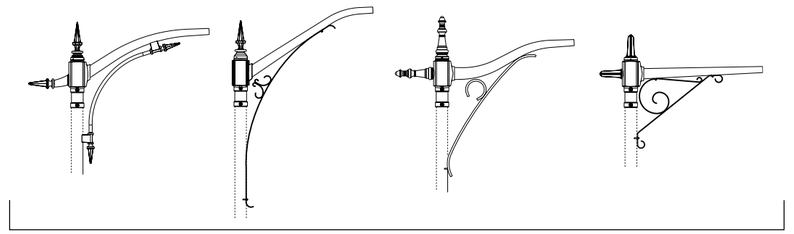
> EXTENDED REACH BRACKETS



CRM4/CRM6/CRM8 P120 | CJL4/CJL5.5/CJL6/CJL8 P119 | DC6/DC8 P121 | DR6/DR8 P121



AC4/AC6/AC8 P122 | YC4/YC6/YC8 P124 | VC4/VC6/VC8 P126 | PC4/PC6/PC8 P128

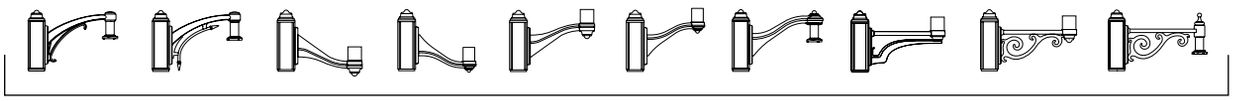


AR4/AR6/AR8 P123 | YR4/YR6/YR8 P125 | VR4/VR6/VR8 P127 | PR4/PR6/PR8 P129

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

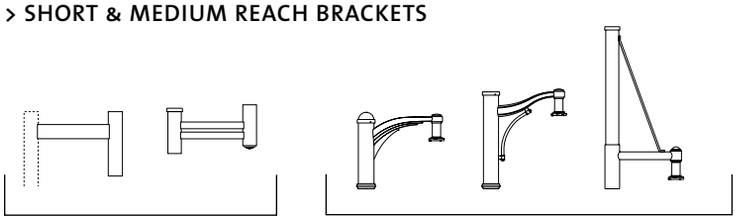
BRACKET INDEX > CONTEMPORARY AND TRADITIONAL BRACKETS

> CAST BRACKETS

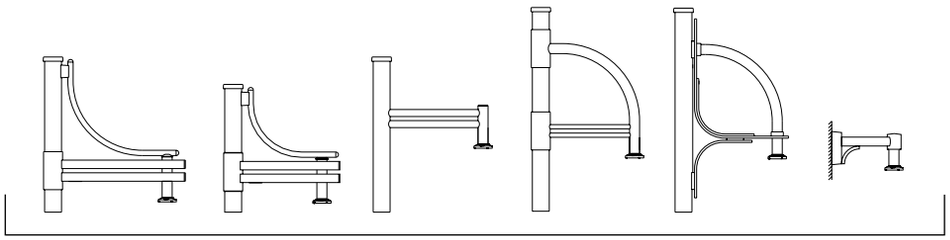


YR P106 | AR P106 | CRD P106 | CRDS P108 | CRF P106 | CRFS P108 | CRFT P107 | CRC P107 | CRA P107 | CRAT P107

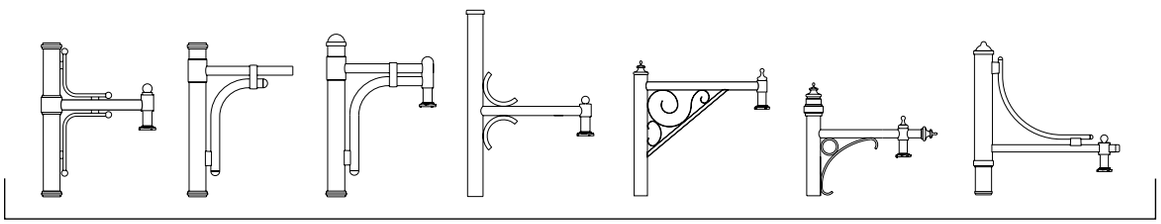
> SHORT & MEDIUM REACH BRACKETS



CR P109 | JR P109 | AC P108 | VC P108 | PC P110

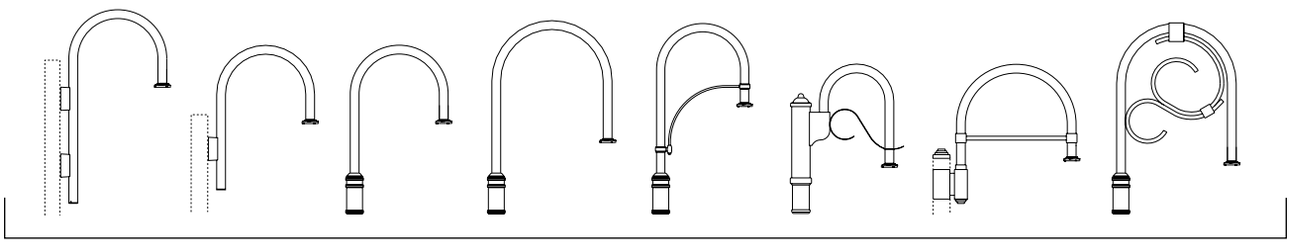


CN1 P110 | CN1S P110 | OM P110 | PM P111 | CN3 P111 | CNB-M P111



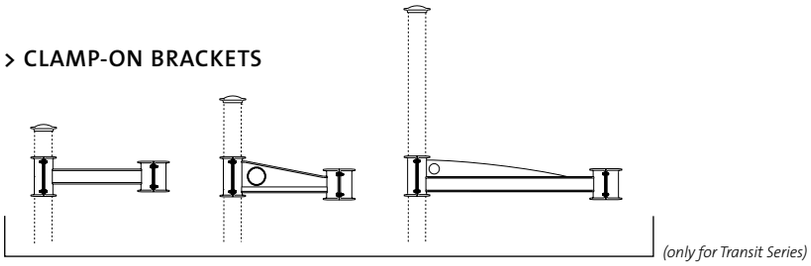
MM P112 | MR P112 | MT P112 | UM P112 | CRG P113 | CRH P113 | CRI P113

> GOOSE NECK BRACKETS



CN5 P114 | IF P114 | SM P114 | MJ P114 | BM P115 | LM P115 | TM P115 | NM P115

> CLAMP-ON BRACKETS

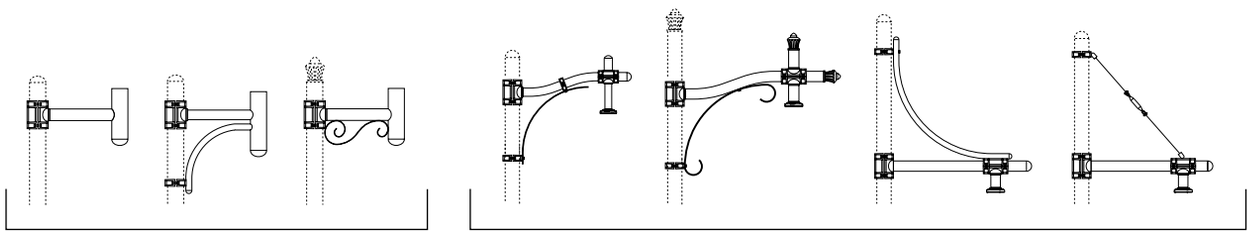


(only for Transit Series)

SN P**118**

TN P**118**

UN P**118**



M10 P**116**

M30 P**116**

M50 P**116**

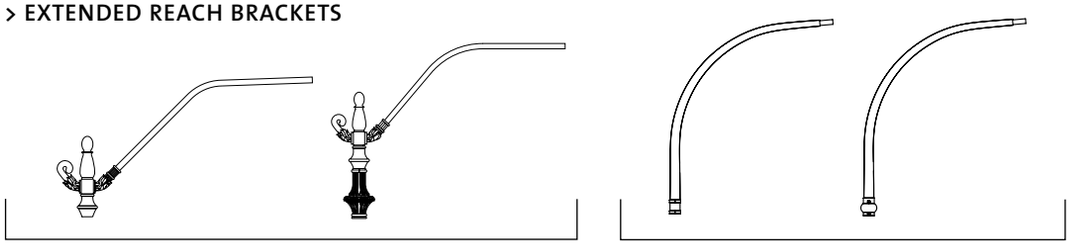
M20H P**117**

M20A P**117**

M20G P**117**

M20M P**117**

> EXTENDED REACH BRACKETS

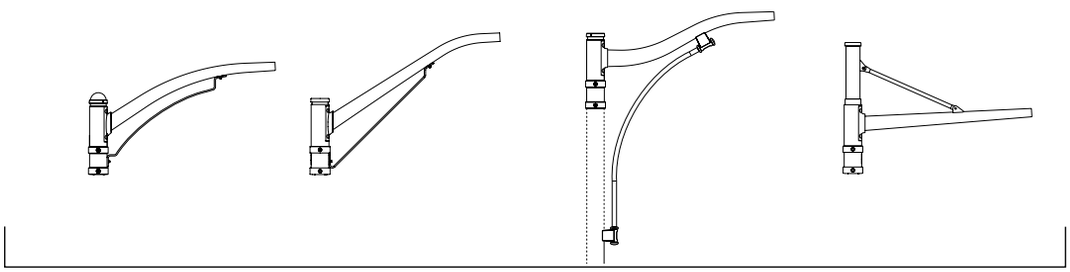


CRM4/CRM6/CRM8 P**120**

CJL4/CJL5.5/CJL6/CJL8 P**119**

DC6/DC8 P**121**

DR6/DR8 P**121**

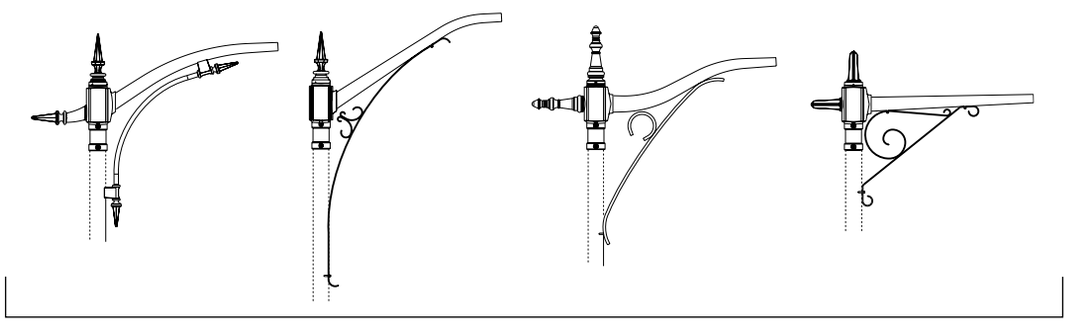


AC4/AC6/AC8 P**122**

YC4/YC6/YC8 P**124**

VC4/VC6/VC8 P**126**

PC4/PC6/PC8 P**128**



AR4/AR6/AR8 P**123**

YR4/YR6/YR8 P**125**

VR4/VR6/VR8 P**127**

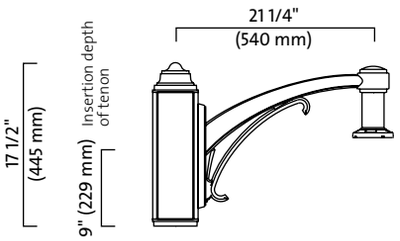
PR4/PR6/PR8 P**129**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

YR / AR / CRD / CRF > CAST BRACKETS

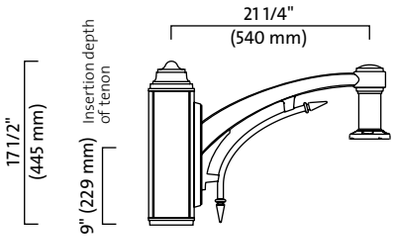
YR

EPA: 1.30 sq.ft. **Weight:** 40.0 lbs. (18.1 kg)



AR

EPA: 1.35 sq.ft. **Weight:** 40.0 lbs. (18.1 kg)



Specifications:

The **YR / AR** mounting arms feature a cast-aluminum curved arm and a decorative element welded to a cast-aluminum plate.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The **YR / AR** plates are mechanically fastened using stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations

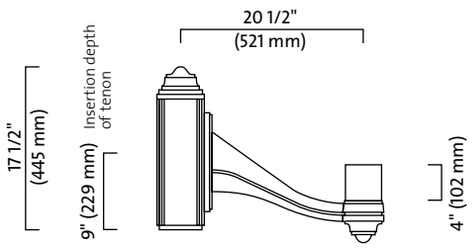
1A 2 2A 3B 4 M

Mid-pole Configurations
> with pole option MPL

F F 2F

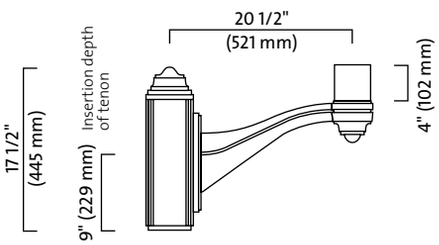
CRD

EPA: 1.34 sq.ft. **Weight:** 25.0 lbs. (11.3 kg)



CRF

EPA: 1.34 sq.ft. **Weight:** 25.0 lbs. (11.3 kg)



Specifications:

The **CRD / CRF** mounting arms feature a cast-aluminum curved arm mechanically assembled to a cast-aluminum plate.

The mounting arms are equipped with a 4" round (102 mm) by 4" high (102 mm) tenon for luminaire mounting.

The **CRD / CRF** plates are mechanically fastened by stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations

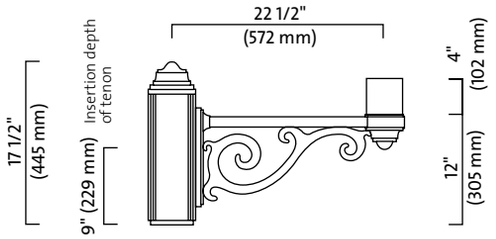
1A 2 2A 3A 3B 4 4A 5 M

Mid-pole Configurations
> with pole option MPL

F F 2F

CRA

EPA: 1.40 sq.ft. **Weight:** 16.0 lbs. (7.3 kg)



Specifications:

The **CRA** mounting arm features a seamless 1" x 2" (25 x 51 mm) rectangular extruded aluminum tube and cast decorative scroll, welded to a cast-aluminum plate.

The mounting arm is equipped with a 4" round (102 mm) by 4" high (102 mm) tenon for luminaire mounting.

The **CRA** plate is mechanically fastened using stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations

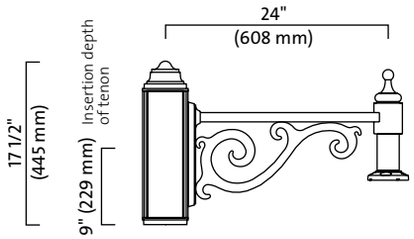
1A 2 2A 3A 3B 4 4A 5 M

Mid-pole Configurations
> with pole option MPL

F F 2F

CRAT

EPA: 1.45 sq.ft. **Weight:** 37.0 lbs. (16.8 kg)



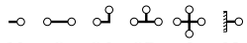
Specifications:

The **CRAT** mounting arm features a seamless 1" x 2" (25 x 51 mm) rectangular extruded aluminum tube and cast decorative scroll, welded to a cast-aluminum plate.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The **CRAT** plate is mechanically fastened using stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations



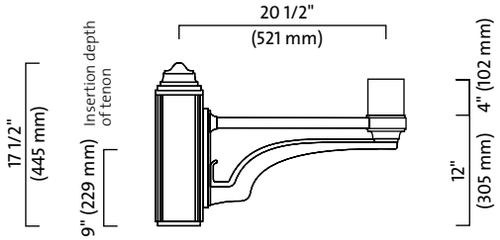
1A 2 2A 3B 4 ~~M~~

Mid-pole Configurations
> with pole option MPL

F F 2F

CRC

EPA: 1.39 sq.ft. **Weight:** 17.0 lbs. (7.7 kg)



Specifications:

The **CRC** mounting arm features a seamless 1" x 2" (25 x 51 mm) rectangular extruded aluminum tube and cast decorative scroll, welded to a cast-aluminum plate.

The mounting arm is equipped with a 4" round (102 mm) by 4" high (102 mm) tenon for luminaire mounting.

The **CRC** plate is mechanically fastened using stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations

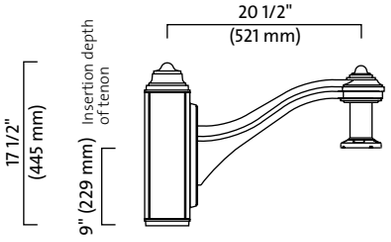
1A 2 2A 3A 3B 4 4A 5 M

Mid-pole Configurations
> with pole option MPL

F F 2F

CRFT

EPA: 1.32 sq.ft. **Weight:** 21.0 lbs. (9.5 kg)



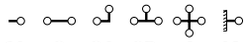
Specifications:

The **CRFT** mounting arm features a cast-aluminum curved arm mechanically assembled to a cast-aluminum plate.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The **CRFT** plate is mechanically fastened using stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations



1A 2 2A 3B 4 ~~M~~

Mid-pole Configurations
> with pole option MPL

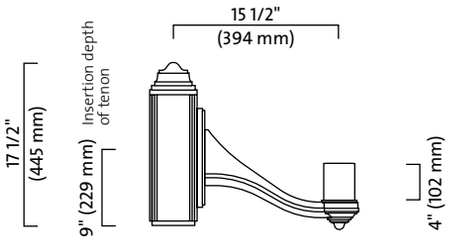
F F 2F

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

CRDS / CRFS / AC / VC > CAST BRACKETS AND SHORT REACH BRACKETS

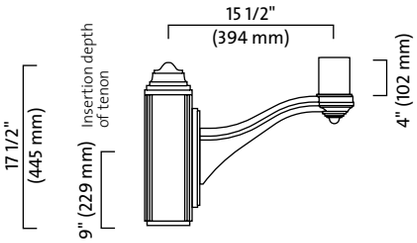
CRDS

EPA: 1.13 sq.ft. **Weight:** 19.0 lbs. (8.6 kg)



CRFS

EPA: 1.12 sq.ft. **Weight:** 19.0 lbs. (8.6 kg)



Specifications:

The **CRDS / CRFS** mounting arms feature a cast-aluminum curved arm mechanically assembled to a cast-aluminum plate.

The mounting arms are equipped with a 3" round (76 mm) by 3" high (76 mm) tenon for luminaire mounting.

The **CRDS / CRFS** plates are mechanically fastened by stainless steel hardware to a central pole adaptor slip-fitting 9" (229 mm) over a 4" (102 mm) O.D. pole or tenon.

Configurations

1A 2 2A 3A 3B 4 4A 5 M

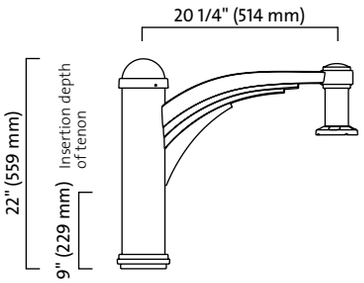
Mid-pole Configurations

> with pole option MPL

F F 2F

AC

EPA: 1.45 sq.ft. **Weight:** 15.0 lbs. (6.8 kg)



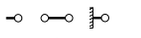
Specifications:

The **AC** mounting arm features a cast-aluminum curved arm, welded to the central pole adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations



1A 2 M

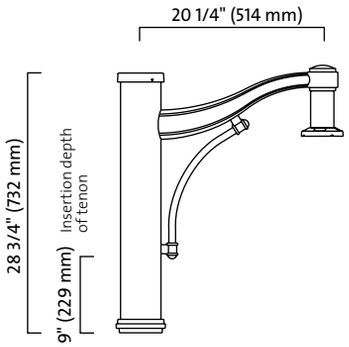
Mid-pole Configurations

> with pole option MPL

F F 2F

VC

EPA: 1.65 sq.ft. **Weight:** 16.0 lbs. (7.3 kg)



Specifications:

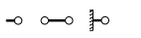
The **VC** mounting arm features a cast-aluminum curved arm welded to the central pole adaptor..

The mounting arm includes an extruded-aluminum decorative curved tubing welded to the side of the central pole adaptor and to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations



1A 2 M

Mid-pole Configurations

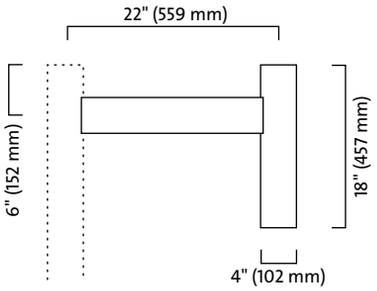
> with pole option MPL

F F 2F

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

CR

EPA: 1.11 sq.ft. **Weight:** 12.0 lbs. (5.4 kg)



Specifications:

The **CR** mounting arm features a seamless 2" by 4" (51 by 102 mm) rectangular aluminum extrusion, mechanically assembled on both sides to the pole and to the luminaire adaptor.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

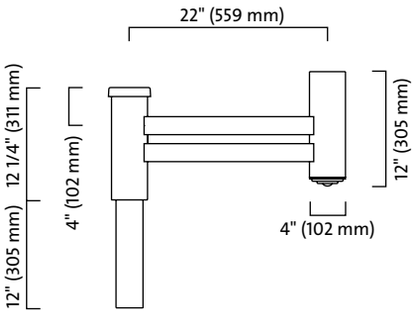
When specified with a central luminaire (configurations 3A, 4A, 4B and 5), a central pole adaptor serves to faciliate installation on site.

Configurations

1A 2 2A 3 3A 3B 4 4A 4B 5 M

JR

EPA: 1.51 sq.ft. **Weight:** 9.0 lbs. (4.1 kg)



Specifications:

The **JR** mounting arm features two seamless 2" by 3" (51 by 76 mm) rectangular aluminum extrusions, welded on both sides to the central pole adaptor and to the luminaire adaptor.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

> *For pole supplied by others, we strongly recommend the OV option.*

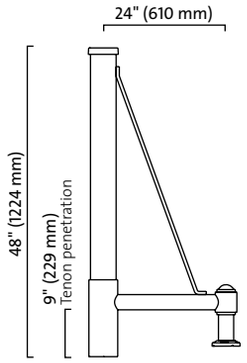
Configurations

1A 2 2A 3 3A 3B 4 4A 4B 5 M

PC / CN1 / CN1S / OM > MEDIUM REACH BRACKETS

PC

EPA: 2.35 sq.ft. **Weight:** 20.0 lbs. (9.1 kg)



Specifications:

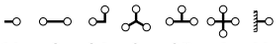
The **PC** mounting arm features a 2 3/8" (60 mm) round extruded-aluminum arm welded to the central pole adaptor.

The mounting arm includes an extruded-aluminum decorative rod welded to the central pole adaptor and to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations



1A 2 2A 3 3B 4 M

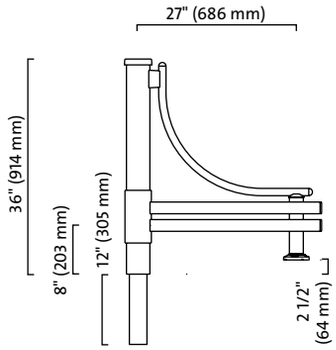
Mid-pole Configurations

> with pole option MPL

F 2F

CN1

EPA: 2.62 sq.ft. **Weight:** 23.0 lbs. (10.4 kg)



Specifications:

The **CN1** mounting arm features two 2" by 3" (51 x 76 mm) rectangular extruded-aluminum arms welded to the central pole adaptor.

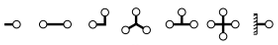
The mounting arm includes a cast-aluminum decorative curved section welded to the central pole adaptor and the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The CN1 is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

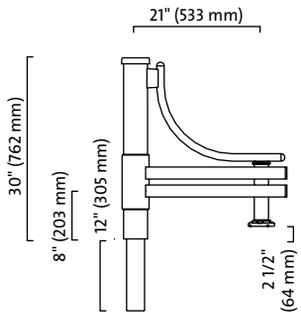
Configurations



1A 2 2A 3 3B 4 M

CN1S

EPA: 2.58 sq.ft. **Weight:** 20.0 lbs. (9.1 kg)



Specifications:

The **CN1S** mounting arm features two 2" by 3" (51 x 76 mm) rectangular extruded-aluminum arms welded to the central pole adaptor.

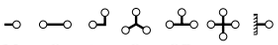
The mounting arm includes a cast-aluminum decorative curved section welded to the central pole adaptor and the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The CN1S is available with the OV option that can accommodate up to one 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

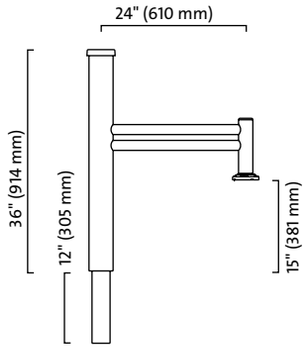
Configurations



1A 2 2A 3 3B 4 M

OM

EPA: 1.84 sq.ft. **Weight:** 12.0 lbs. (5.4 kg)



Specifications:

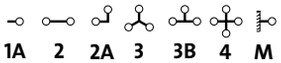
The **OM** mounting arm features two straight 1 5/8" O.D. (41 mm) arms welded to the central pole adaptor and an extruded-aluminum luminaire adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The OM is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

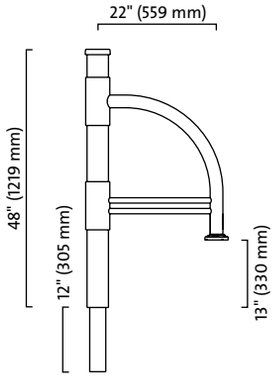
Configurations



1A 2 2A 3 3B 4 M

PM

EPA: 2.53 sq.ft. **Weight:** 18.0 lbs. (8.2 kg)



Specifications:

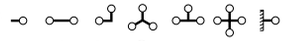
The **PM** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tubing bent at a 90° angle and welded to two 1" (25 mm) extruded-aluminum arms, two decorative rings.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The PM is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

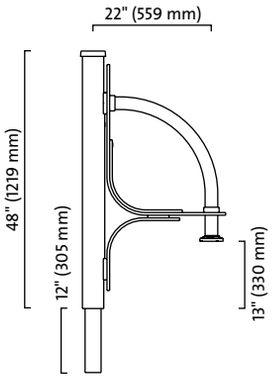
Configurations



1A 2 2A 3 3B 4 M

CN3

EPA: 2.63 sq.ft. **Weight:** 26.0 lbs. (11.8 kg)



Specifications:

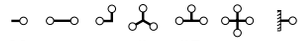
The **CN3** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tubing bent at a 90° angle welded to the central pole adaptor and to a cast-aluminum curved decorative flat band arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The CN3 is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

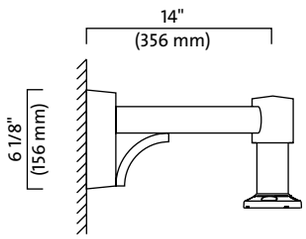
Configurations



1A 2 2A 3 3B 4 M

CNB-M

EPA: 0.38 sq.ft. **Weight:** 5.0 lbs. (2.03 kg)



Specifications:

The **CRC** mounting arm features a 2" by 3" (51 by 76 mm) rectangular extruded-aluminum arm welded to a cast-aluminum wall-mounted housing.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

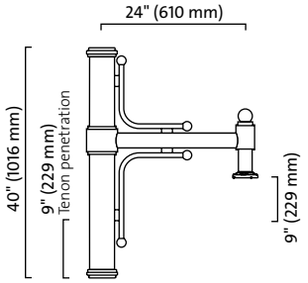
Configurations

M

MM / MR / MT / UM > MEDIUM REACH BRACKETS

MM

EPA: 2.32 sq.ft. **Weight:** 22.0 lbs. (10.0 kg)



Specifications:

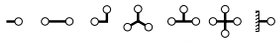
The **MM** mounting arm features a 2 3/8" round (60 mm) extruded-aluminum arm welded to an aluminum central pole adaptor.

The mounting arm includes two decorative cast-aliminum bent rods.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

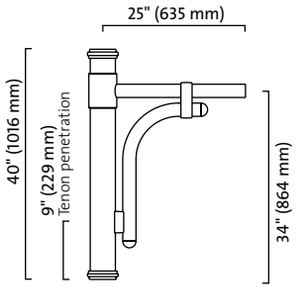
Configurations



1A 2 2A 3 3B 4 M

MR

EPA: 2.10 sq.ft. **Weight:** 20.0 lbs. (9.1 kg)



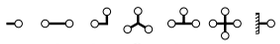
Specifications:

The **MR** mounting arm features a 2 3/8" round (60 mm) extruded-aluminum arm welded to an aluminum central pole adaptor.

The mounting includes a decorative bent extruded-aluminum tube welded to the central pole adaptor and to the arm.

The cast-aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

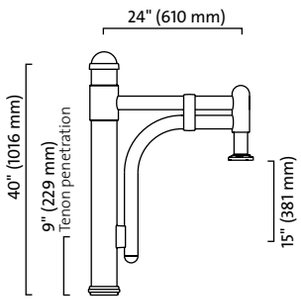
Configurations



1A 2 2A 3 3B 4 M

MT

EPA: 2.20 sq.ft. **Weight:** 21.0 lbs. (9.5 kg)



Specifications:

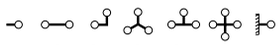
The **MT** mounting arm features a 2 3/8" round (60 mm) extruded-aluminum arm welded to an aluminum central pole adaptor.

The mounting arm includes a decorative bent extruded-aluminum tube welded to the central pole adaptor and to the luminaire adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

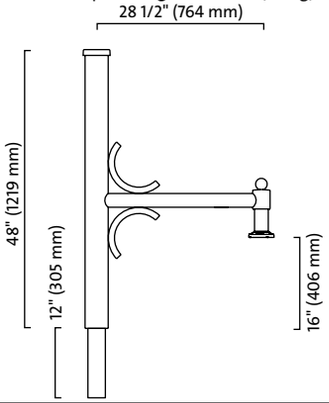
Configurations



1A 2 2A 3 3B 4 M

UM

EPA: 2.33 sq.ft. **Weight:** 16.0 lbs. (7.3 kg)



Specifications:

The **UM** mounting arm features a 2 3/8" round (60 mm) extruded-aluminum arm welded to an aluminum central pole adaptor.

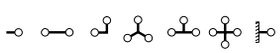
The mounting arm includes two cast-aluminum decorative elements welded to the central pole adaptor and to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The UM is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

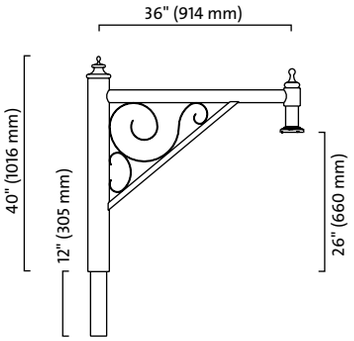
Configurations



1A 2 2A 3 3B 4 M

CRG

EPA: 2.29 sq.ft. **Weight:** 15.0 lbs. (6.8 kg)



Specifications:

The **CRG** mounting arm features one 2 3/8" round (60 mm) extruded-aluminum arm welded to the central pole adaptor.

A 1 1/8" square (29 mm) extruded-aluminum tube is welded at an angle to the central pole adaptor and to the arm.

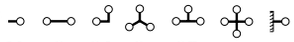
The mounting arm includes two decorative rolled sections of a flat aluminum band welded between the arm, central pole adaptor and angled tube.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

> The CRG is available with the OV option that can accommodate up to two 175W ballasts.
> For pole supplied by others, we strongly recommend the OV option.

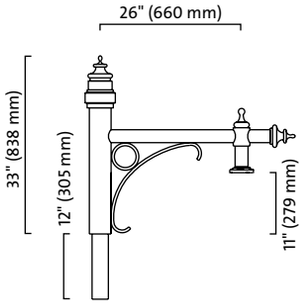
Configurations



1A 2 2A 3 3B 4 M

CRH

EPA: 1.95 **SQ.FT.** **Weight:** 24.0 **LBS.** (10.9 **KG**)



Specifications:

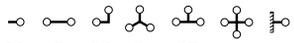
The **CRH** mounting arm features one 2 3/8" round (60 mm) extruded-aluminum arm welded to the central pole adaptor. Both are closed by a decorative cast-aluminum cover.

The mounting arm includes two decorative rolled sections of aluminum rods welded between the arm and the central pole adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The central pole adaptor slip-fits 12" (305 mm) into a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

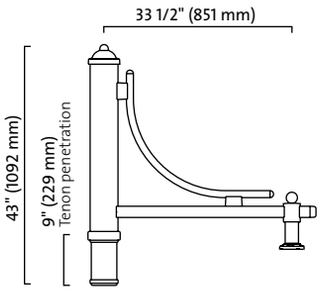
Configurations



1A 2 2A 3 3B 4 M

CRI

CRI mounting can integrate up to 2 ballasts of 175W.
EPA: 2.68 sq.ft. **Weight:** 40.0 lbs. (18.1 kg)



Specifications:

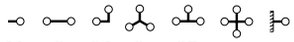
The **CRI** mounting arm features one 2" by 2" (51 x 51 mm) square extruded-aluminum arm welded to the central pole adaptor and closed by a cast-aluminum cover.

The mounting arm includes a 1 1/4" O.D. (32 mm) cast-aluminum decorative curved section welded to both the central pole adaptor and the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

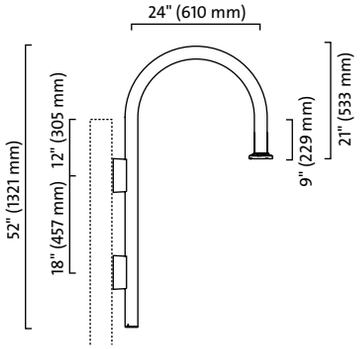


1A 2 2A 3 3B 4 M

CN5 / IF / SM / MJ > GOOSE NECK BRACKETS

CN5

EPA: 1.81 sq.ft. **Weight:** 11.0 lbs. (5.0 kg)



Specifications:

The **CN5** mounting arm features a 2 3/8"-O.D. (60 mm) extruded-aluminum tube bent at a 180° angle and mechanically assembled to the side of the pole using two cast-aluminum mounting arm adaptors.

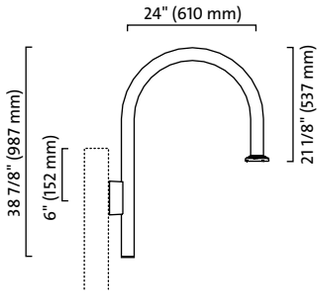
The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

Configurations

1A 2 2A 3 3B 4 M

IF

EPA: 1.41 sq.ft. **Weight:** 9.0 lbs. (4.0 kg)



Specifications:

The **IF** mounting arm features a 2 3/8"-O.D. (60 mm) extruded-aluminum tube bent at a 180° angle and mechanically assembled to the pole using a cast-aluminum mounting adaptor.

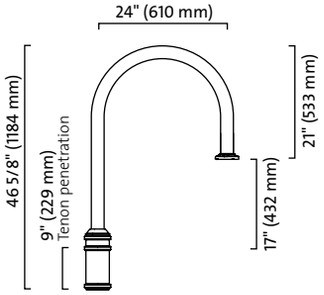
The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

Configurations

1A 2 2A 3 3B 4 M

SM

EPA: 1.37 sq.ft. **Weight:** 13.0 lbs. (5.9 kg)



Specifications:

The **SM** mounting arm features a 2 3/8"-O.D. (60 mm) extruded-aluminum tube bent at a 180° angle welded to a cast-aluminum pole-top adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

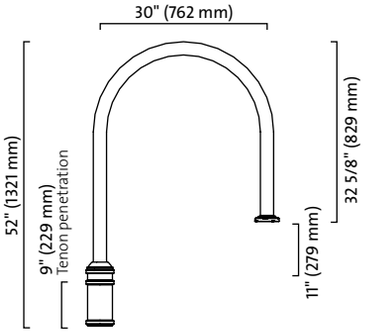
The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A 2

MJ

EPA: 2.00 sq.ft. **Weight:** 13.0 lbs. (5.9 kg)



Specifications:

The **MJ** mounting arm features a 2 3/8"-O.D. (60 mm) extruded-aluminum tube bent at a 180° angle welded to a cast-aluminum pole-top adaptor.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

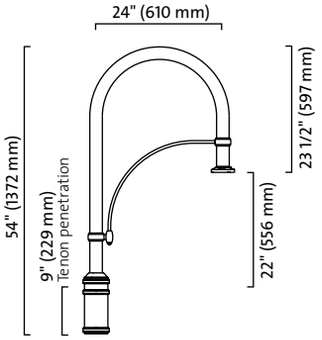
> The MJ bracket is offered with LG option (medaillon to accept logo) see page 134.

Configurations

1A 2 M

BM

EPA: 2.00 sq.ft. **Weight:** 40.0 lbs. (18.1 kg)



Specifications:

The **BM** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tube bent at 180° welded to a cast-aluminum adaptor.

The mounting arm includes an aluminum decorative element welded to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

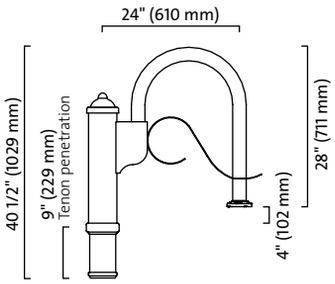
The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **M**

LM

EPA: 2.59 sq.ft. **Weight:** 21.0 lbs. (9.5 kg)



Specifications:

The **LM** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tube bent at 180° welded to a cast-aluminum adaptor.

The mounting arm includes a flat rolled aluminum decorative element.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

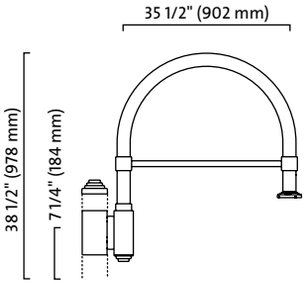
The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **2A** **3** **3B** **4** **M**

TM

EPA: 2.27 sq.ft. **Weight:** 20.0 lbs. (9.1 kg)



Specifications:

The **TM** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tube bent at 180° and welded to a pole adaptor.

The mounting arm includes an extruded-aluminum 1 1/16" (27 mm) O.D. decorative element welded to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

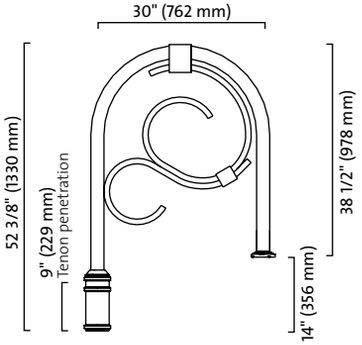
The aluminum central pole adaptor slip-fits over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole.

Configurations

1A **2** **3** **3B** **4** **M**

NM

EPA: 2.81 sq.ft. **Weight:** 27 lbs. (12.3 kg)



Specifications:

The **NM** mounting arm features a 2 3/8" O.D. (60 mm) extruded-aluminum tube bent at 180°, welded to a cast-aluminum pole adaptor.

The mounting arm includes a cast-aluminum decorative spiral element welded to the arm.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The aluminum central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

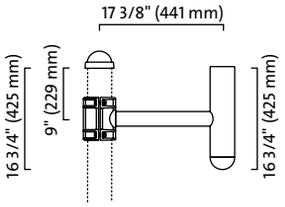
1A **2** **M**

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

PHILIPS LUMEC

M10

EPA: 1.03 sq.ft. **Weight:** 9.0 lbs. (4.1 kg)



Specifications:

The **M10** mounting arm features a 2 3/8" round (60 mm), extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

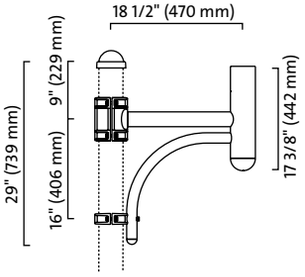
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP3 CAP4

M30

EPA: 1.56 sq.ft. **Weight:** 12.0 lbs. (5.4 kg)



Specifications:

The **M30** mounting arm features a 2 3/8" round (60 mm), extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a decorative curved 1.66" round (42 mm) extruded bent aluminum piece is mechanically secured to the pole using a clamp and welded to the luminaire adaptor.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

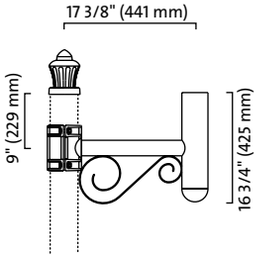
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP3 CAP4

M50

EPA: 1.19 sq.ft. **Weight:** 14.0 lbs. (6.4 kg)



Specifications:

The **M50** mounting arm features a 2 3/8" round (60 mm), extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a decorative rolled flat aluminum decorative element, welded to the arm, luminaire adaptor and pole adaptor.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

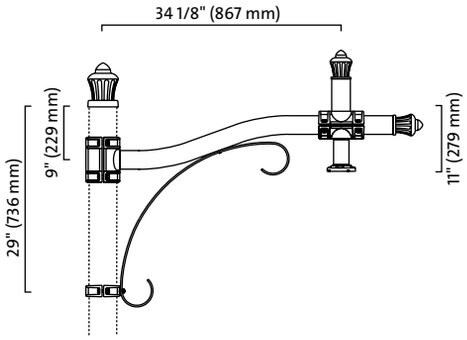
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP2 CAP3

M20A

EPA: 2.06 sq.ft. **Weight:** 28.0 lbs. (12.7 kg)



Specifications:

The **M20A** mounting arm features a 2 7/8" round (73 mm) double-bend extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a flat bent aluminum decorative element mechanically secured to the arm and pole.

A suspended luminaire adaptor is mechanically secured to the arm by a decorative cast-aluminum clamp and stainless steel hardware.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

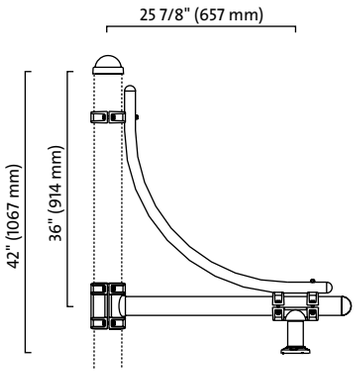
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP3

M20G

EPA: 1.76 sq.ft. **Weight:** 18.0 lbs. (8.2 kg)



Specifications:

The **M20G** mounting arm features a 2 7/8" round (73 mm), straight extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a bent extruded-aluminum decorative element mechanically secured to the arm and pole.

A suspended luminaire adaptor is mechanically secured to the arm by a decorative cast-aluminum clamp and stainless steel hardware.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

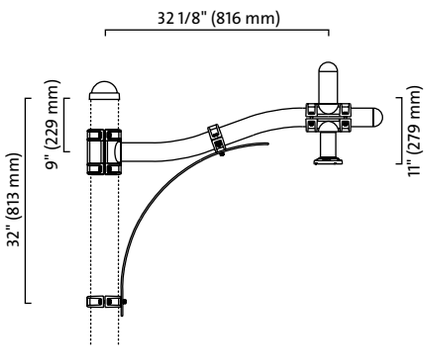
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP3 CAP4

M20H

EPA: 1.76 sq.ft. **Weight:** 19.0 lbs. (8.6 kg)



Specifications:

The **M20H** mounting arm features a 2 7/8" round (73 mm) double-bend extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap

The mounting arm includes a flat bent aluminum decorative element mechanically secured to the arm and pole.

A suspended luminaire adaptor is mechanically secured to the arm by a decorative cast-aluminum clamp and stainless steel hardware.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

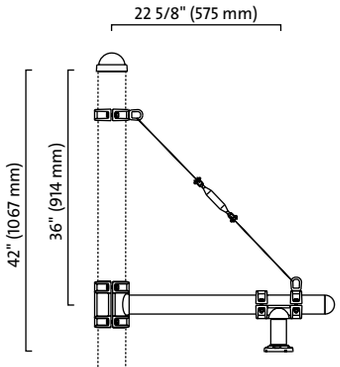
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

Optional Pole Caps CAP1 CAP2 CAP3

M20M

EPA: 1.34 sq.ft. **Weight:** 19.0 lbs. (8.6 kg)



Specifications:

The **M20M** mounting arm features a 2 7/8" round (73 mm), straight extruded-aluminum tube, welded to a cast-aluminum clamp-on pole adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a steel cable decorative element mechanically secured to the arm and pole.

A suspended luminaire adaptor is mechanically secured to the arm by a decorative cast-aluminum clamp and stainless steel hardware.

The luminaire adaptor will accept a luminaire equipped with Lumec's four-bolt mounting system.

The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations 1A 2 M

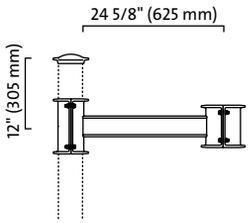
Optional Pole Caps CAP1 CAP3 CAP4

Note: Philips Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

SN / TN / UN > CLAMP-ON BRACKETS *(only for Transit series)*

SN

EPA: 1.51 sq.ft. **Weight:** 16.0 lbs. (7.3 kg)



Specifications:

The **SN** mounting arm features an extruded-aluminum arm, welded to a cast-aluminum clamp-on pole adaptor and luminaire adaptor. Comes with a standard decorative pole cap.

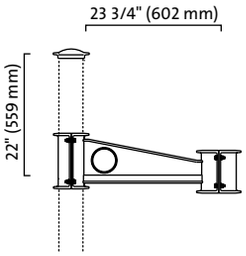
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations **1A** **2** **M**

Optional Pole Caps **CAP1** **CAP2**

TN

EPA: 1.87 sq.ft. **Weight:** 19.0 lbs. (8.6 kg)



Specifications:

The **TN** mounting arm features a decorative cast-aluminum arm, with straight edge and a decorative hole,welded to a cast-aluminum clamp-on pole adaptor and luminaire adaptor. Comes with a standard decorative pole cap.

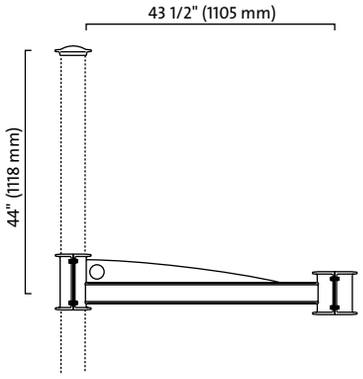
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations **1A** **2** **M**

Optional Pole Caps **CAP1** **CAP2**

UN

EPA: 1.68 sq.ft. **Weight:** 17.0 lbs. (7.7 kg)



Specifications:

The **UN** mounting arm features an extruded-aluminum arm, welded to a cast-aluminum clamp-on pole adaptor and luminaire adaptor. Comes with a standard decorative pole cap.

The mounting arm includes a decorative aluminum piece, with a straigh edge on the bottom and a decorative hole that is mechanically secured to the arm and luminaire adaptor.

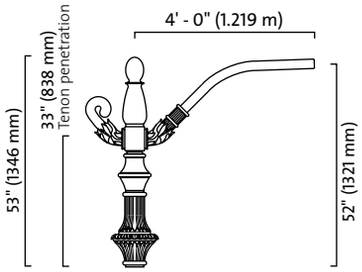
The mounting arm clamp is mechanically assembled on a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) pole using stainless steel hardware. The location is pre-drilled on Lumec poles.

Configurations **1A** **2** **M**

Optional Pole Caps **CAP1** **CAP2**

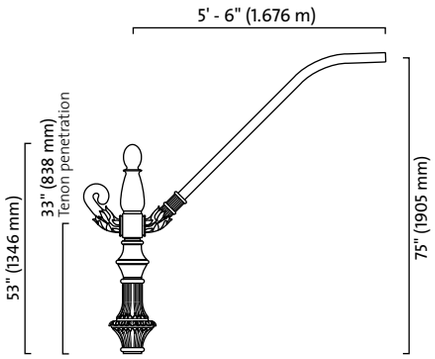
CJL4

EPA: 4.10 sq.ft. **Weight:** 36.0 lbs. (16.3 kg)



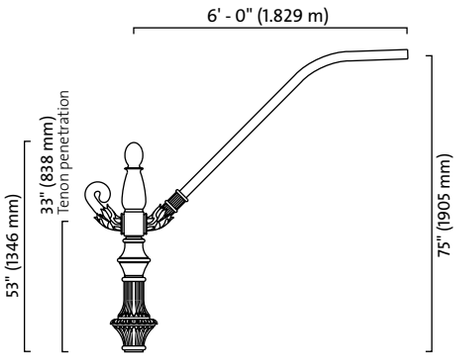
CJL5.5

EPA: 4.40 sq.ft. **Weight:** 41.0 lbs. (18.6 kg)



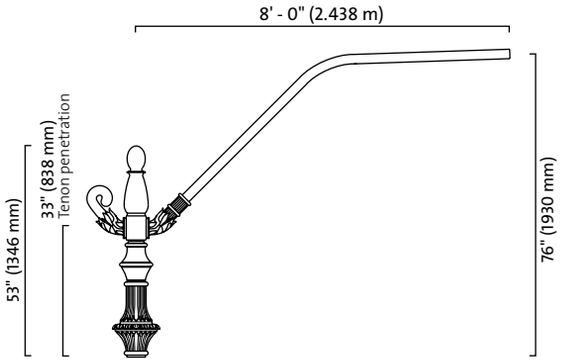
CJL6

EPA: 4.51 sq.ft. **Weight:** 43.0 lbs. (19.5 kg)



CJL8

EPA: 4.95 sq.ft. **Weight:** 50.0 lbs. (22.7 kg)



Specifications:

The **CJL4 / CJL5.5 / CJL6 / CJL8** mounting arms feature a 2 3/8" O.D. (60 mm) double bent steel tube welded to a steel adaptor.

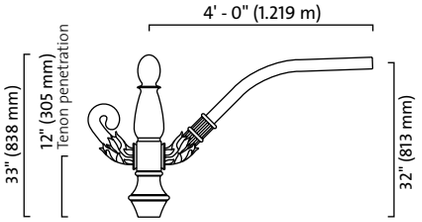
The mounting arms assemblies include cast-aluminum decorative elements. The pole-top adaptor slip-fits over a two-step tenon 2 7/8" (73 mm) O.D. (top section) and 4" (120 mm) O.D. (bottom section), 30" (762 mm) tall.

Configurations

1A **2** **4**

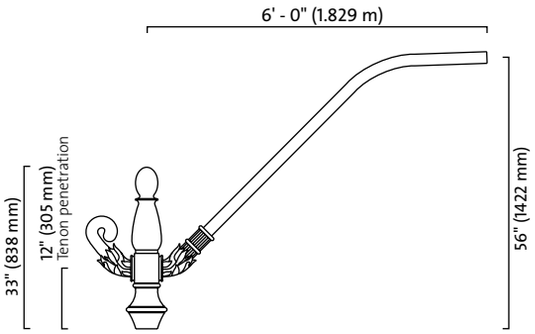
CRM4

EPA: 3.00 sq.ft. **Weight:** 31.0 lbs. (14.1 kg)



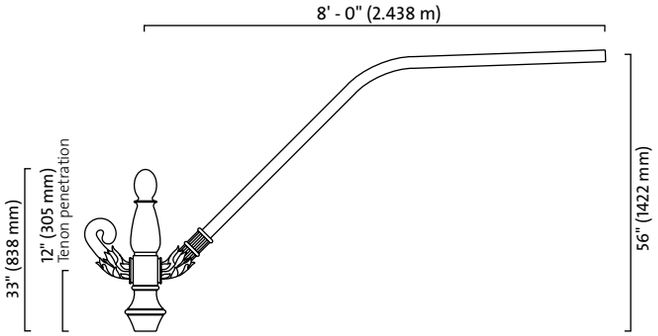
CRM6

EPA: 3.33 sq.ft. **Weight:** 37.0 lbs. (16.8 kg)



CRM8

EPA: 3.73 sq.ft. **Weight:** 42.0 lbs. (19.1 kg)



Specifications:

The **CRM4 / CRM6 / CRM8** mounting arms feature a 2 3/8" O.D. (60 mm) double-bend steel tube welded to a steel adaptor.

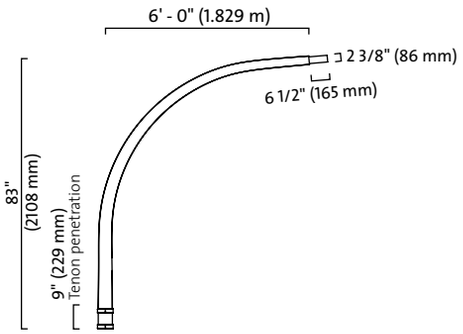
The mounting arms assemblies include cast-aluminum decorative elements. The pole-top adaptor slip-fits 10 3/8" (264 mm) over a 2 7/8" (73 mm) O.D. tenon.

Configurations

1A **2** **4**

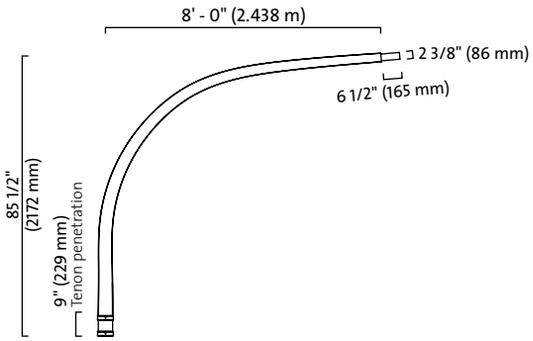
DC6

EPA: 4.07 sq.ft. **Weight:** 32.0 lbs. (14.5 kg)



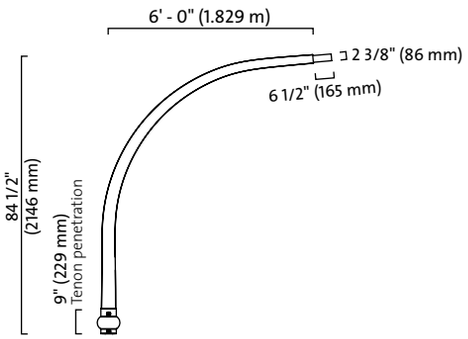
DC8

EPA: 5.00 sq.ft. **Weight:** 43.0 lbs. (19.5 kg)



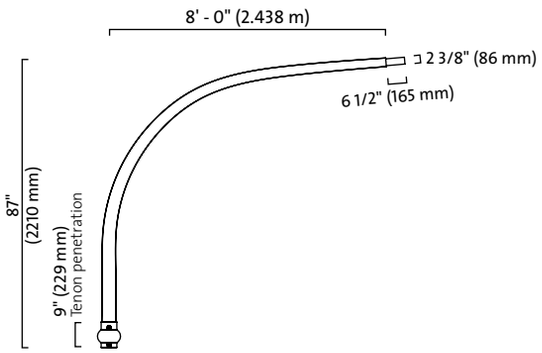
DR6

EPA: 4.07 sq.ft. **Weight:** 32.0 lbs. (14.5 kg)



DR8

EPA: 5.00 sq.ft. **Weight:** 43.0 lbs. (19.5 kg)



Specifications:

The **DC6 / DC8 / DR6 / DR8** mounting arms feature a round and smooth tapered aluminum bent arm welded to cast-aluminum pole adaptor.

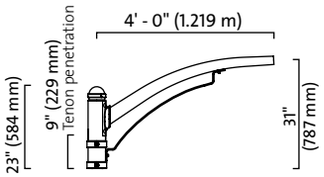
The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

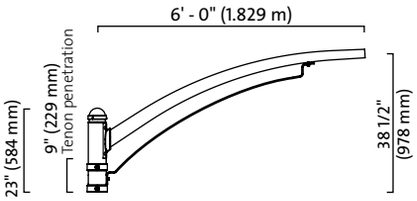
AC4

EPA: 2.34 sq.ft. **Weight:** 20.0 lbs. (9.1 kg)



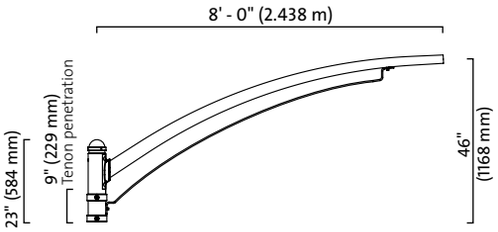
AC6

EPA: 3.06 sq.ft. **Weight:** 23.0 lbs. (10.4 kg)



AC8

EPA: 3.77 sq.ft. **Weight:** 32.0 lbs. (14.5 kg)



Specifications:

The **AC4 / AC6 / AC8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative curved flat piece of aluminum, mechanically assembled to the central pole adaptor and to the arm using stainless steel hardware.

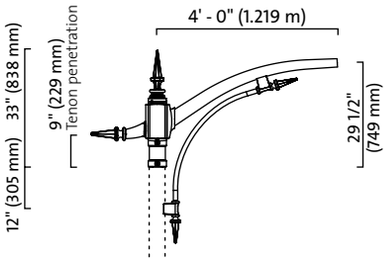
The central pole adaptor is complete with a cast-aluminum cap, slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

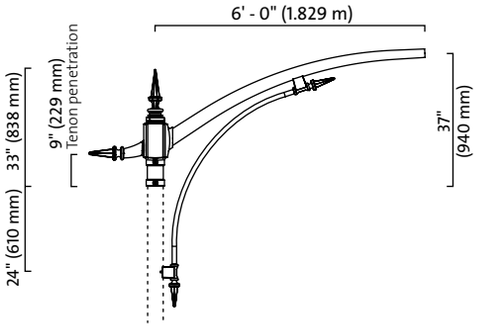
AR4

EPA: 3.63 sq.ft. **Weight:** 31.0 lbs. (14.1 kg)



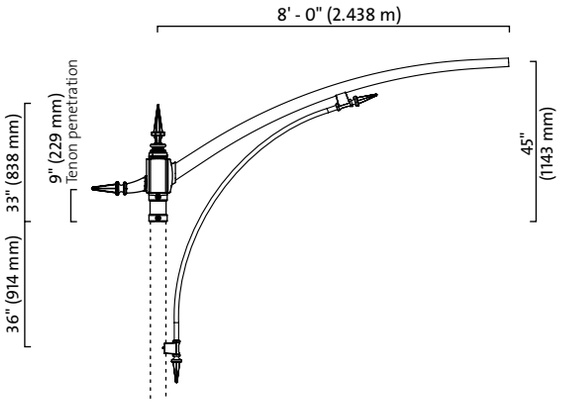
AR6

EPA: 4.49 sq.ft. **Weight:** 34.0 lbs. (15.4 kg)



AR8

EPA: 5.36 sq.ft. **Weight:** 43.0 lbs. (19.5kg)



Specifications:

The **AR4 / AR6 / AR8** mounting arms a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative bent piece of aluminum, mechanically assembled to the pole and to the arm using stainless steel hardware, complete with a decorative cast aluminum cap on each end.

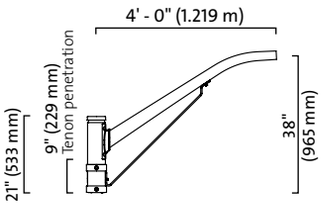
The central pole adaptor is complete with a decorative cast-aluminum cap. With the IA configurationa cast-aluminumdecorative side cap is added. The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

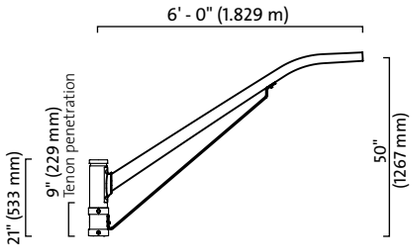
YC4

EPA: 2.36 sq.ft. **Weight:** 25.0 lbs. (11.3 kg)



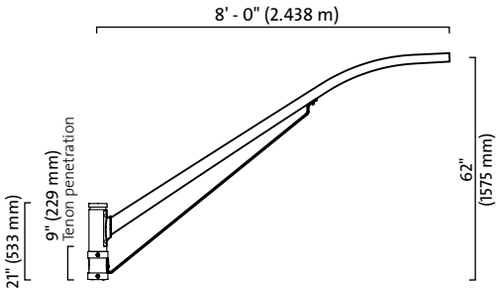
YC6

EPA: 3.10 sq.ft. **Weight:** 30.0 lbs. (13.6 kg)



YC8

EPA: 3.76 sq.ft. **Weight:** 38.0 lbs. (17.2 kg)



Specifications:

The **YC4 / YC6 / YC8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative bent piece of aluminum, mechanically assembled to the central pole adaptor and to the arm using stainless steel hardware.

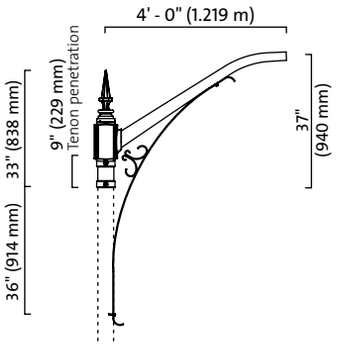
The central pole adaptor is complete with a cast-aluminum cap, slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

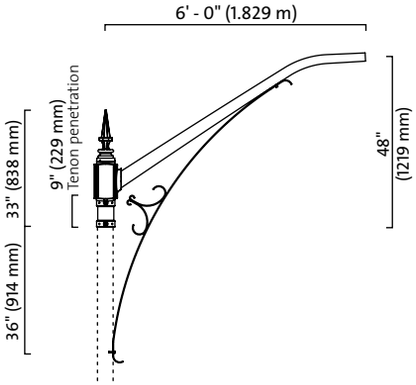
YR4

EPA: 2.69 sq.ft. **Weight:** 29.0 lbs. (13.2 kg)



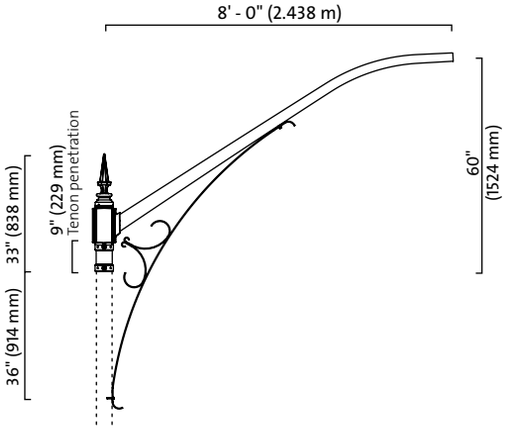
YR6

EPA: 3.43 sq.ft. **Weight:** 34.0 lbs. (15.4 kg)



YR8

EPA: 4.07 sq.ft. **Weight:** 43.0 lbs. (17.2 kg)



Specifications:

The **YR4 / YR6 / YR8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative bent piece of aluminum, mechanically assembled to the pole and to the arm using stainless steel hardware.

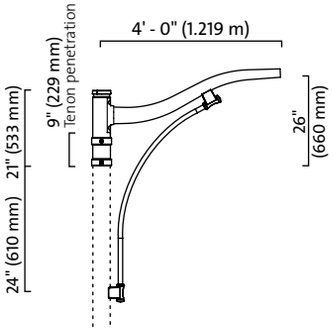
The central pole adaptor is complete with a decorative cast-aluminum cap, slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

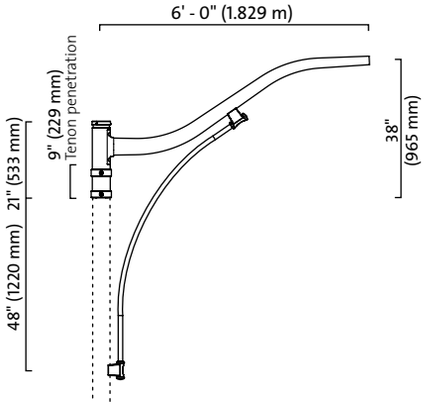
VC4

EPA: 3.12 sq.ft. **Weight:** 24.0 lbs. (10.9 kg)



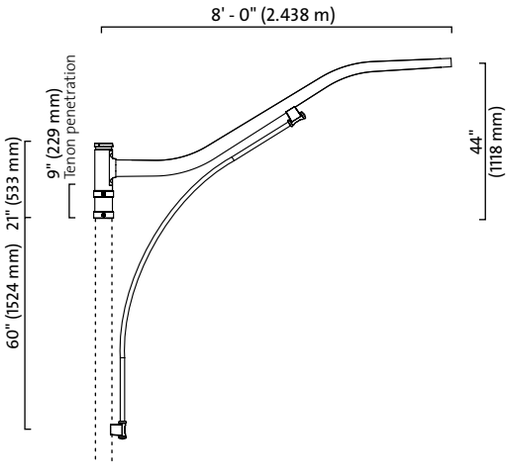
VC6

EPA: 4.06 sq.ft. **Weight:** 28.0 lbs. (12.7 kg)



VC8

EPA: 5.02 sq.ft. **Weight:** 37.0 lbs. (16.8 kg)



Specifications:

The **VC4 / VC6 / VC8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative bent piece of aluminum rod mechanically assembled to the arm and to the pole using stainless steel hardware, complete with decorative cast aluminum cap on each end.

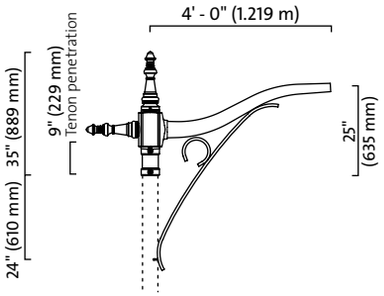
The central pole adaptor is complete with a cast-aluminum cap, slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

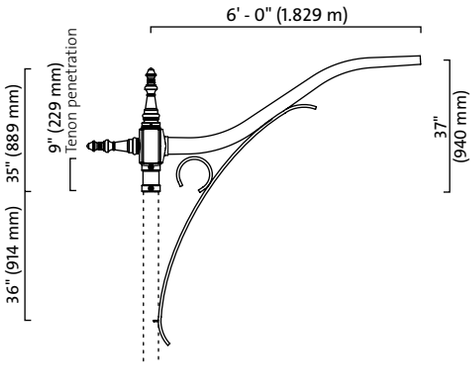
VR4

EPA: 3.49 sq.ft. **Weight:** 26.0 lbs. (11.8 kg)



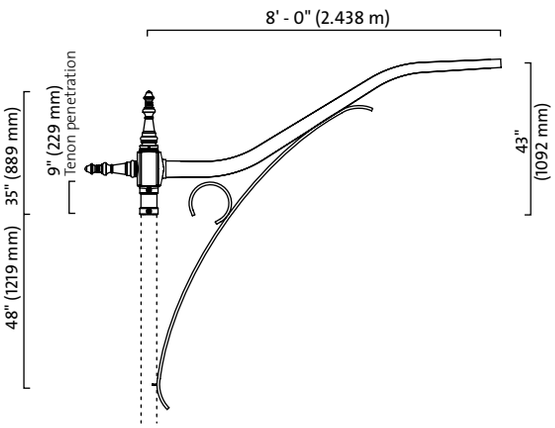
VR6

EPA: 4.44 sq.ft. **Weight:** 30.0 lbs. (13.6 kg)



VR8

EPA: 5.33 sq.ft. **Weight:** 39.0 lbs. (17.7 kg)



Specifications:

The **VR4 / VR6 / VR8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative U-channel made of bent aluminum, mechanically assembled to the pole and to the arm using stainless steel hardware.

The central pole adaptor is complete with a decorative cast-aluminum cap. With the IA configurationa cast-aluminumdecorative side cap is added. The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

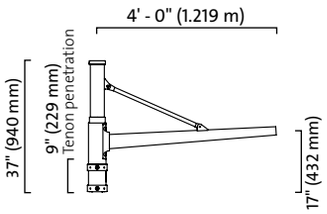
Configurations

1A **2** **4**

PC4 / PC6 / PC8 > EXTENDED REACH BRACKETS

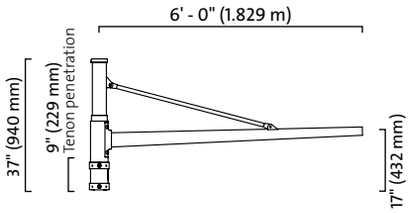
PC4

EPA: 2.88 sq.ft. **Weight:** 25.0 lbs. (11.3 kg)



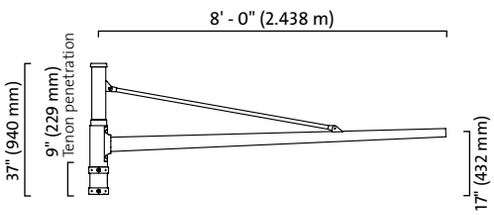
PC6

EPA: 3.63 sq.ft. **Weight:** 28.0 lbs. (12.7 kg)



PC8

EPA: 4.39 sq.ft. **Weight:** 37.0 lbs. (16.8 kg)



Specifications:

The **PC4 / PC6 / PC8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting includes a decorative extruded-aluminum tube mechanically assembled to the arm and to the central pole adaptor using stainless steel hardware.

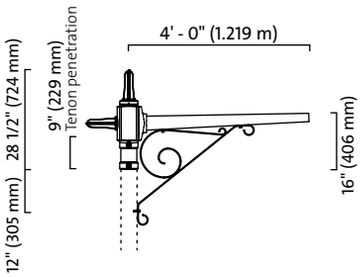
The central pole adaptor is complete with a cast-aluminum cap, slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configurations

1A **2** **4**

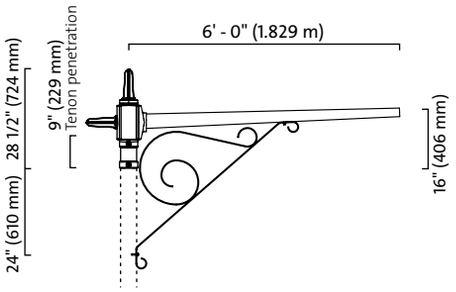
PR4

EPA: 2.73 sq.ft. **Weight:** 26.0 lbs. (11.8 kg)



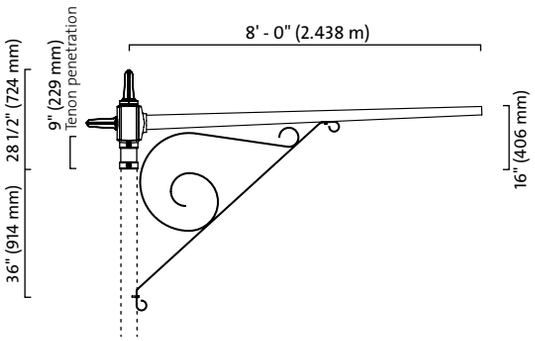
PR6

EPA: 3.44 sq.ft. **Weight:** 31.0 lbs. (14.1 kg)



PR8

EPA: 4.14 sq.ft. **Weight:** 40.0 lbs. (18.1 kg)



Specifications:

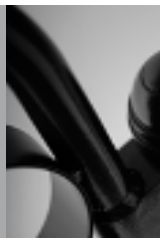
The **PR4 / PR6 / PR8** mounting arms feature a tapered spun aluminum arm of 4" by 2 7/8" (102 by 73 mm) to 2 3/8" (60 mm) O.D. at the luminaire end, mechanically assembled to the central housing.

The mounting arms include a decorative bent piece of aluminum, mechanically assembled to the pole and to the arm using stainless steel hardware.

The central pole adaptor is complete with a decorative cast-aluminum cap. With the IA configurationa cast-aluminumdecorative side cap is added. The central pole adaptor slip-fits 9" (229 mm) over a 4" (102 mm), 5" (127 mm) or 5 9/16" (141 mm) O.D. pole or tenon.

Configuration

1A **2** **4**



www.lumec.com

LUMEC HEAD OFFICE
640, Curé-Boivin Boulevard
Boisbriand, Québec
Canada J7G 2A7
T : 450.430.7040
F : 450.430.1453

ONTARIO OFFICE
189 Bullock Drive
Markham, Ontario
Canada L3P 1W4
T : 416.223.7255
F : 866.971.2825

MEXICO OFFICE
Zempoala #217
Col. Antenor Salas (Narvarte)
Mexico, D.F 03010
T : (5255) 5564.5242
F : 450.971.2816

For the details of our different agents and representatives, please consult the **Contact us** section of our Website.

Hg / Some luminaires use fluorescent or high intensity discharge (HID) lamps that contain small amounts of mercury. Such lamps are labeled "Contains Mercury" and/or with the symbol "Hg." Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at **www.lamprecycle.org**

>> The choice to not print paper brochures anymore but to make them available on-line is an example of the positive environmental actions that Philips Lumec has decided to undertake. This not only considerably reduces our paper consumption but also guarantees the exactitude of the information our clients receive.

PHILIPS
LUMEC

Urban

Renaissance

RNS small

Project:

Location:

Cat.No:

Type:

Lamps: Qty:

Notes:

Philips Lumec's Renaissance Series mixes refinement together with ambition. The design reflects and evokes late 19th and early 20th century styling, perfectly suited for most urban and rural areas, while the state-of-the-art technology inside assures exceptional photometric performance, a long lifespan, and ease of maintenance.

Ordering guide: Luminaire

Example: RNS20-35W32LED4K-T-ACDR-LE5-120-DMG-SMA-RC-BKTX

Series	LED module		Lamp type	Globe material	Optical system	Voltage	Driver options
RNS20	*4000K*	*3000K*	**T**	**ACDR** Acrylic globe	**LE2** Type II (ASYM)	**120** 120V	**AST** Pre-set, progressive start-up
RNS30	**24W16LED4K**	**24W16LED3K**		**GL** Glass globe	**LE3** Type III (ASYM)	**208** 208V	**CLO** Pre-set, manage lumen depreciation
	30W16LED4K	**30W16LED3K**			**LE4** Type IV (ASYM)	**240** 240V	**DALI** Pre-set, compatible with the DALI control system
	35W32LED4K	**35W32LED3K**			**LE5**[1] Type V (SYMM)	**277** 277V	**OTL** Pre-set to signal end of life of the lamp
	55W32LED4K	**55W32LED3K**					**DMG** 0-10V
							CDMGP Dimming level set by user
							CDMGE25 8 hrs. 25% reduction
							CDMGE50 8 hrs. 50% reduction
							CDMGE75 8 hrs. 75% reduction
							CDMGM25 6 hrs. 25% reduction
							CDMGM50 6 hrs. 50% reduction
							CDMGM75 6 hrs. 75% reduction
							CDMGS25 4 hrs. 25% reduction
							CDMGS50 4 hrs. 50% reduction
							CDMGS75 4 hrs. 75% reduction

Ordering guide (continued)

Adaptors	Luminaire options	Poles & Brackets	Finish
MA1 1 1/4" NPT threaded hole adaptor	**DE1** Decorative deflector	Consult Philips.com/luminaires for details and the complete line of Philips poles and brackets.	**BE2TX** Textured midnight blue
MA2 1 1/2" NPT threaded hole adaptor	**HS** House Side Shield		**BE6TX** Textured ocean blue
SMA[6] Decorative retro side-mounted cast-aluminum, accepts tubes from 1 5/8" to 2 3/8"	**PH8**[2,3,4] Photoelectric cell		**BE8TX** Textured royal blue
	PH9[2,3,4] Shorting cap		**BG2TX** Textured Sandstone
	PHXL[2,3,4] Photoelectric cell, extended life		**BKTX** Textured black
SMB Decorative contemporary side-mounted cast-aluminum, accepts tubes from 1 5/8" to 2 3/8"	**RC**[2,3,4] Receptacle 3 pins		**BRTX** Textured bronze
	RCD[2,3,4] Receptacle 5 pins		**GN4TX** Textured blue green
	RCD7[2,3,4] Receptacle 7 pins		**GN6TX** Textured forest green
YM Yoke mount	**SP2** Surge protector		**GN8TX** Textured Dk forest green
			GNTX Textured green
			GR Gray sandtex
			GY3TX Textured medium grey
			NP Natural aluminum
			RD2TX Textured burgundy
			RD4TX Textured scarlet
			TG Hammer-tone gold
			TS Hammer-tone silver
			WHTX Textured white

Footnotes

1. Not available with HS option.
2. **SMA** or **SMB** adaptors is required for this option.
3. Not available with YM adaptor.
4. Luminaire option **RC**, **RCD** or **RCD7** is required with this options.
5. Use of photoelectric cell or shorting cap is required to ensure proper illumination.
6. Only 3 pin receptacle **RC** is available with **SMA** adaptor.

RNS20 / 30 small Renaissance

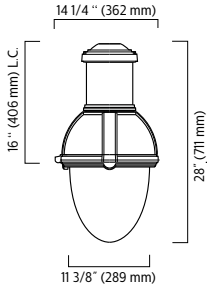
Urban luminaire

Features

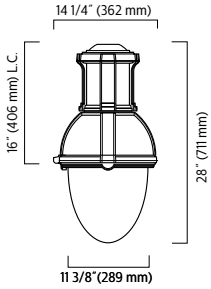
1. Constructed from top-quality materials, the Contemporary Lantern Series maintains excellent performance in even the most demanding environments.
2. Type LE2, LE3, LE4 and LE5 optic distributions are available to meet a range of lighting applications.
3. Acrylic globe has satin-finish to gently obscure the source without compromising photometry.
4. Tool free access to lamp and electrical components for ease of maintenance.
5. Unique styling merges traditional and contemporary design.

Dimensions

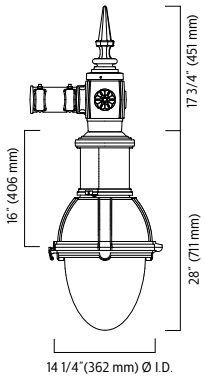
EPA: 1.43 ft² max.
ACDR Weight: 37 lbs (16.8kg) max.
GL Weight: 66 lbs (20.9kg) max.
EPA and weight are calculated without adaptor



RNS20

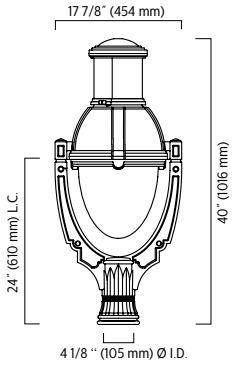


RNS30



RNS20/30-SMA

EPA: 2.53 ft² max.
ACDR Weight: 48 lbs (21.8kg) max.
GL Weight: 57 lbs (25.9kg) max.



RNS20/30-YM

Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours.

Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
35°C	800 mA	>99,000 hours	>60,000 hours	>83%

RNS20 / 30 small Renaissance

Urban luminaire

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 4000K (3985K +/- 275K or 3710K to 4260K)

System (LED + driver) rated life = 100,000 hrs[1]

LED Module	Typical delivered lumens	Typical system wattage (W)[2]	Typical System Current (A) @				LED current (mA)	HID [3] equivalent	Luminaire Efficacy Rating (Lm/W)	BUG rating
			120V	208V	240V	277V				
24W16LED4K-T-LE2	3040	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE3	3017	28	0.25	0.15	0.13	0.12	530	70-100	106	B1-U2-G1
24W16LED4K-T-LE4	3032	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE5	3050	28	0.25	0.15	0.13	0.12	530	70-100	107	B2-U2-G2
30W16LED4K-T-LE2	3825	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE3	3796	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE4	3815	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE5	3837	37	0.32	0.19	0.17	0.15	700	70-100	104	B3-U3-G3
35W32LED4K-T-LE2	4236	36	0.31	0.19	0.17	0.16	350	70-100	118	B1-U3-G1
35W32LED4K-T-LE3	4175	36	0.31	0.19	0.17	0.16	350	70-100	116	B1-U2-G1
35W32LED4K-T-LE4	4225	36	0.31	0.19	0.17	0.16	350	70-100	117	B1-U2-G1
35W32LED4K-T-LE5	4249	36	0.31	0.19	0.17	0.16	350	70-100	118	B3-U3-G3
55W32LED4K-T-LE2	5945	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G1
55W32LED4K-T-LE3	5900	53	0.47	0.27	0.24	0.22	530	100-150	110	B1-U3-G2
55W32LED4K-T-LE4	5930	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G2
55W32LED4K-T-LE5	5994	53	0.47	0.27	0.24	0.22	530	100-150	113	B3-U3-G3

LED light engine technical information for RNS20-30

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K (3045K +/- 175K or 2870K to 3220K)

System (LED + driver) rated life = 100,000 hrs[1]

LED Module	Typical delivered lumens	Typical system wattage (W)[2]	Typical System Current (A) @				LED current (mA)	HID [3] equivalent	Luminaire Efficacy Rating (Lm/W)	BUG rating
			120V	208V	240V	277V				
24W16LED3K-T-LE2	2824	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE3	2802	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE4	2817	28	0.25	0.15	0.13	0.12	530	70-100	100	B1-U2-G1
24W16LED3K-T-LE5	2763	28	0.25	0.15	0.13	0.12	530	70-100	98	B2-U2-G2
30W16LED3K-T-LE2	3552	37	0.32	0.19	0.17	0.15	700	70-100	97	B1-U2-G1
30W16LED3K-T-LE3	3525	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE4	3543	37	0.32	0.19	0.17	0.15	700	70-100	96	B1-U2-G1
30W16LED3K-T-LE5	3484	37	0.32	0.19	0.17	0.15	700	70-100	95	B3-U2-G3
35W32LED3K-T-LE2	3907	36	0.31	0.19	0.17	0.16	350	70-100	109	B1-U2-G1
35W32LED3K-T-LE3	3877	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE4	3897	36	0.31	0.19	0.17	0.16	350	70-100	108	B1-U2-G1
35W32LED3K-T-LE5	3939	36	0.31	0.19	0.17	0.16	350	70-100	109	B3-U3-G3
55W32LED3K-T-LE2	5522	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G1
55W32LED3K-T-LE3	5480	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE4	5508	53	0.47	0.27	0.24	0.22	530	100-150	103	B1-U3-G2
55W32LED3K-T-LE5	5567	53	0.47	0.27	0.24	0.22	530	100-150	104	B3-U3-G3

1. L70 = 70,000 hrs (at ambient temperature = 25°C)
2. System wattage includes the lamp and the LED driver
3. These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

RNS20 / 30 small Renaissance

Urban luminaire

LED light engine technical information for RNS20-30 Yoke Mount (YM)

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 4000K (3985K +/- 275K or 3710K to 4260K)
System (LED + driver) rated life = 100,000 hrs[1]

LED Module	Typical delivered lumens	Typical system wattage (W)[2]	Typical System Current (A) @				LED current (mA)	HID [3] equivalent	Luminaire Efficacy Rating (Lm/W)	BUG rating
			120V	208V	240V	277V				
24W16LED4K-T-LE2-YM	2307	28	0.25	0.15	0.13	0.12	530	70-100	82	B1-U2-G1
24W16LED4K-T-LE3-YM	2431	28	0.25	0.15	0.13	0.12	530	70-100	87	B1-U2-G1
24W16LED4K-T-LE4-YM	2540	28	0.25	0.15	0.13	0.12	530	70-100	90	B1-U2-G1
24W16LED4K-T-LE5-YM	2645	28	0.25	0.15	0.13	0.12	530	70-100	94	B2-U2-G2
30W16LED4K-T-LE2-YM	2903	37	0.32	0.19	0.17	0.15	700	70-100	79	B1-U2-G1
30W16LED4K-T-LE3-YM	3059	37	0.32	0.19	0.17	0.15	700	70-100	83	B1-U2-G1
30W16LED4K-T-LE4-YM	3195	37	0.32	0.19	0.17	0.15	700	70-100	87	B1-U2-G1
30W16LED4K-T-LE5-YM	3328	37	0.32	0.19	0.17	0.15	700	70-100	90	B2-U2-G2
35W32LED4K-T-LE2-YM	3215	36	0.31	0.19	0.17	0.16	350	70-100	89	B1-U3-G1
35W32LED4K-T-LE3-YM	3388	36	0.31	0.19	0.17	0.16	350	70-100	94	B1-U2-G1
35W32LED4K-T-LE4-YM	3539	36	0.31	0.19	0.17	0.16	350	70-100	98	B1-U2-G1
35W32LED4K-T-LE5-YM	3686	36	0.31	0.19	0.17	0.16	350	70-100	102	B3-U3-G3
55W32LED4K-T-LE2-YM	4600	53	0.47	0.27	0.24	0.22	530	100-150	86	B1-U3-G1
55W32LED4K-T-LE3-YM	4847	53	0.47	0.27	0.24	0.22	530	100-150	91	B1-U3-G2
55W32LED4K-T-LE4-YM	5063	53	0.47	0.27	0.24	0.22	530	100-150	95	B1-U3-G2
55W32LED4K-T-LE5-YM	5273	53	0.47	0.27	0.24	0.22	530	100-150	99	B3-U3-G3

LED light engine technical information for RNS20-30 Yoke Mount (YM)

LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 3000K nominal (3045K +/- 175K or 2870K to 3220K)
System (LED + driver) rated life = 100,000 hrs[1]

LED Module	Typical delivered lumens	Typical system wattage (W)[2]	Typical System Current (A) @				LED current (mA)	HID [3] equivalent	Luminaire Efficacy Rating (Lm/W)	BUG rating
			120V	208V	240V	277V				
24W16LED3K-T-LE2-YM	2143	28	0.25	0.15	0.13	0.12	530	70-100	76	B1-U2-G1
24W16LED3K-T-LE3-YM	2258	28	0.25	0.15	0.13	0.12	530	70-100	80	B1-U2-G1
24W16LED3K-T-LE4-YM	2359	28	0.25	0.15	0.13	0.12	530	70-100	84	B1-U2-G1
24W16LED3K-T-LE5-YM	2253	28	0.25	0.15	0.13	0.12	530	70-100	80	B2-U2-G2
30W16LED3K-T-LE2-YM	2696	37	0.32	0.19	0.17	0.15	700	70-100	73	B1-U2-G1
30W16LED3K-T-LE3-YM	2841	37	0.32	0.19	0.17	0.15	700	70-100	77	B1-U2-G1
30W16LED3K-T-LE4-YM	2968	37	0.32	0.19	0.17	0.15	700	70-100	81	B1-U2-G1
30W16LED3K-T-LE5-YM	2835	37	0.32	0.19	0.17	0.15	700	70-100	77	B2-U2-G2
35W32LED3K-T-LE2-YM	2986	36	0.31	0.19	0.17	0.16	350	70-100	83	B1-U3-G1
35W32LED3K-T-LE3-YM	3147	36	0.31	0.19	0.17	0.16	350	70-100	87	B1-U2-G1
35W32LED3K-T-LE4-YM	3287	36	0.31	0.19	0.17	0.16	350	70-100	91	B1-U2-G1
35W32LED3K-T-LE5-YM	3140	36	0.31	0.19	0.17	0.16	350	70-100	87	B3-U3-G3
55W32LED3K-T-LE2-YM	4272	53	0.47	0.27	0.24	0.22	530	100-150	80	B1-U3-G1
55W32LED3K-T-LE3-YM	4502	53	0.47	0.27	0.24	0.22	530	100-150	84	B1-U3-G2
55W32LED3K-T-LE4-YM	4702	53	0.47	0.27	0.24	0.22	530	100-150	88	B1-U3-G2
55W32LED3K-T-LE5-YM	4492	53	0.47	0.27	0.24	0.22	530	100-150	84	B3-U3-G3

1. L70 = 70,000 hrs (at ambient temperature = 25°C)
2. System wattage includes the lamp and the LED driver
3. These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

RNS20 / 30 small Renaissance

Urban luminaire

Specifications:

Hood

Cast 356 aluminum dome, mechanically assembled on the luminaire, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8 16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

YM version: Cast 356 aluminum dome, mechanically assembled on the housing.

Housing

In a round shape, this housing is made of injection die cast A380 aluminum, complete with a weatherproof door giving a tool free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

YM version: In a round shape, this housing is made of die cast A380 aluminum, welded to the yoke.

Access-mechanism

A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool free access to the inside of the luminaire. An embedded memory retentive gasket shall ensure weatherproofing.

Globe

LEx: Made of one-piece seamless injection-molded (**ACDR**) DR acrylic or (**GL**) clear borosilicate glass globe having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

Light engine

LEDgine composed of 4 main components:
Heat sink / LED module /
Optical system / Driver

Electrical components are RoHS compliant.

Heat sink

Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device)

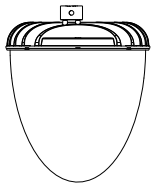
LED engine

LED type Philips Lumileds LUXEON T. Composed of high-performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 3000 Kelvin nominal (3045K +/- 175K) or 4000 Kelvin nominal (3985K +/- 275K), CRI 70 Min. 75 Typical.

Optical system

LE2 (type II asymmetrical), **LE3** (type III asymmetrical), **LE4** (type IV asymmetrical) or **LE5** (type V symmetrical) light distributions. Composed of high performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM 63, LM 79 and TM 15 (IESNA) certifying its photometric performance. Street side indicated.

Prismatic globe: IP66 rated optical system, composed of individual pre-oriented lens to achieve desired distribution, assembled with globe having an inner prismatic surface permanently sealed onto the lower part of the heat sink.



LE2 - Type II (asymmetrical)
LE3 - Type III (asymmetrical)
LE4 - Type IV (asymmetrical)
LE5 - Type V (symmetrical)

Driver

High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. Driver comes with dimming compatible 0-10 volts.

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver options

AST: Pre-set driver for progressive start-up of the LED module(s) to optimize energy management and enhance visual comfort at start-up.

CLO: Pre-set driver to manage the lumen depreciation by adjusting the power given to the LEDs offering the same lighting intensity during the entire lifespan of the LED module.

DMG: Dimmable driver 0-10V.

OTL: Pre-set driver to signal end of life of the LED module(s) for better fixture management.

CDMG: Dynadimmer standard dimming functionalities including pre-programmed scenarios to suit many applications and needs from safety to maximum energy savings.

Ordering Code	Scenario	Dimming Time	Dimming Level
CDMG**S25**	Safety	4 hours	25% power dimming
CDMG**S50**	Safety	4 hours	50% power dimming
CDMG**S75**	Safety	4 hours	75% power dimming
CDMG**M25**	Median	6 hours	25% power dimming
CDMG**M50**	Median	6 hours	50% power dimming
CDMG**M75**	Median	6 hours	75% power dimming
CDMG**E25**	Economy	8 hours	25% power dimming
CDMG**E50**	Economy	8 hours	50% power dimming
CDMG**E75**	Economy	8 hours	75% power dimming

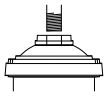
Surge Protector

Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

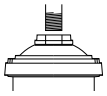
Specifications (continued)

Luminaire adaptor

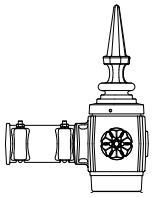
MA1: The luminaire is suspended by means of a mounting adaptor with a 1¼" (32mm) NPT threaded hole accepting a threaded tube from the mounting. Retrofit adaptor for existing mounting



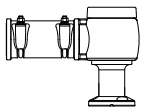
MA2: 1½" (38mm) NPT threaded hole accepting threaded tube from the mounting. Retrofit adaptor for existing mounting.



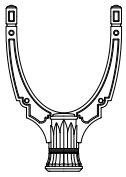
SMA: The luminaire is suspended by means of a decorative side-mounted cast aluminum adaptor. This adaptor accepts tubes from 1⅝" to 2⅜" (41 to 60 mm) and is adjustable to more or less 5°. The adaptor features a cast aluminum decorative cover and finial.



SMB: The luminaire is suspended by means of a decorative side-mounted cast aluminum adaptor. This adaptor accepts tubes from 1⅝" to 2⅜" (41 to 60 mm) and is adjustable to more or less 5°.

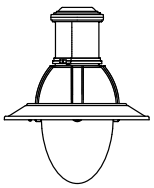


YM: Yoke made of cast 356 aluminum, c/w a fitter to fit over a 4in. (102mm) outside diameter x 4in.(102mm) long tenon, mechanically assembled with 4 set screws 3/8 16 UNC.



Luminaire options

DE1: Decorative deflector



HS: House side shield

RC: Receptacle 3 pins

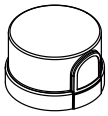
RCD: Receptacle 5 pins

RCD7: Receptacle 7 pins

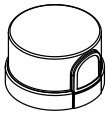
SP2: Integral surge protector

Luminaire accessories

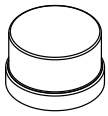
PH8: Photoelectric Cell, Twist-lock Type complete with receptacle. Allows a 90 degree rotation.



PHXL: Extended life photoelectric cell, Twist-lock Type complete with receptacle. Allows a 90 degree rotation.



PH9: Shorting cap, Twist-lock Type complete with receptacle.



Specifications (continued)

Finish

The Thermosetting powder coating provided meets the color requirements of the AAMA 2604 specification as measured per ASTM D2244. The Thermosetting product is applied at a dry film of 2.5 to 4.0 mils (64-102 microns) on textured finishes, resulting in a durable long lasting finish.

Finish Options Include:
BE2TX: Textured Midnight Blue

BE6TX: Textured Ocean Blue

BE8TX: Textured Royal Blue

BG2TX: Textured Sandstone

BKTX: Textured Black

BRTX: Textured Bronze

GN4TX: Textured Blue Green

GN6TX: Textured Forest Green

GN8TX: Textured Dark Forest Green

GNTX: Textured Green

GR: Gray Sandtex

GY3TX: Textured Medium Grey

NP: Natural Aluminum

RD2TX: Textured Burgundy

RD4TX: Textured Scarlet

TG: Hammer-tone Gold

TS: Hammer-tone Silver

WHTX: Textured White

Wiring

Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding from luminaire.

Hardware

All exposed screws shall be complete with Ceramic primer-seal base coat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

LED products (manufacturing standard)

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340 5 1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality control

Manufactured to ISO 9001 2008 standards and ISO 14001-2004 International Quality Standards Certification.

Vibration resistance

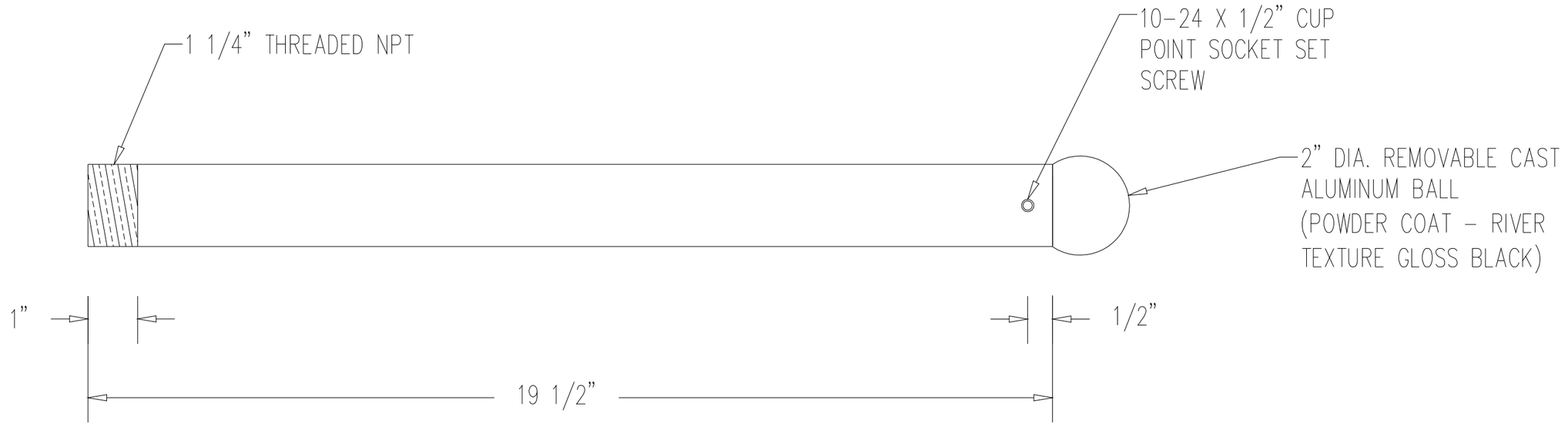
Meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. (Tested for 1.5G over 100 000 cycles)

Certifications and Compliance

UL8750 and UL1598 compliant. ETL and cETL Listed to U.S. and Canadian safety standards for wet locations. In accordance with applicable ANSI C136 standards. Renaissance LED luminaires are DesignLights Consortium qualified.

Philips Lighting North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Philips Lighting Canada Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008



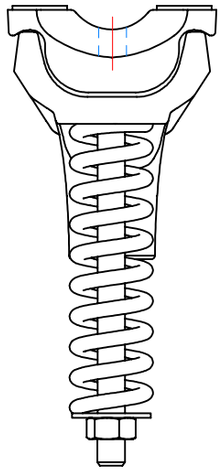
BANNER ARM SPECIFICATIONS

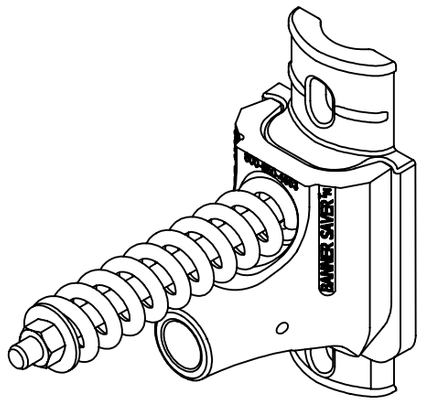
STYLE:	BANNER
PIPE:	1 1/4" THREADED NPT
LENGTH:	19 1/2"
MATERIAL:	STEEL PIPE WITH CAST ALUMINUM ORNAMENTATION
FINISH:	POWDER COAT - RIVER TEXTURE GLOSS BLACK
CATALOG NO.:	SBNUBT-1S-1.25-19.50-F02-CU

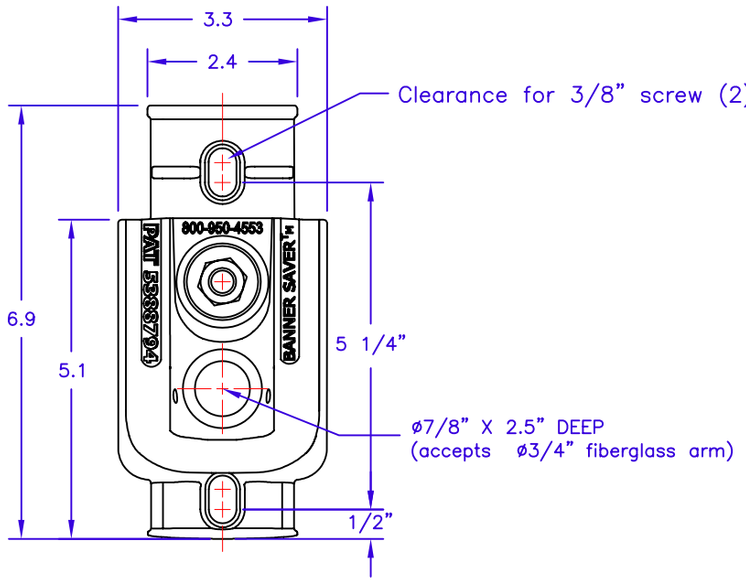
Spring City Electrical Mfg. Co.
HALL AND MAIN STREETS - P.O. BOX 19 - SPRING CITY, PA. 19475
PHONE (610) 948-4000 - FAX (610) 948-5577 - WWW.SPRINGCITY.COM

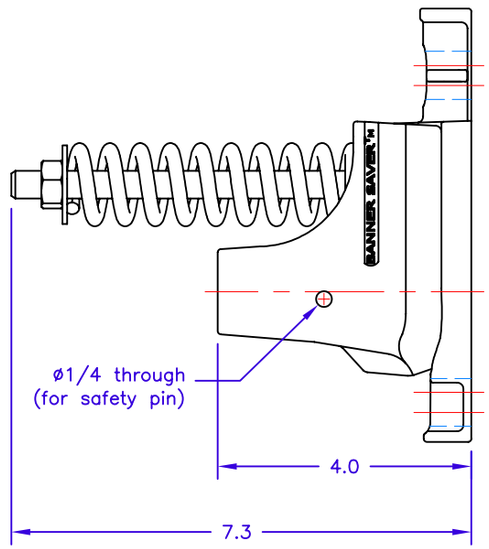
DESCRIPTION	BANNER ARM		
CUSTOMER / JOB	BURLINGTON, VT		
SCALE	DRAWN BY:	DATE	DRAWING NO.
N.T.S.	T.E.B.	12-11-17	S104039

REV	DATE	DESCRIPTION	INIT
A	XX/XX/XX	RELEASED TO PRODUCTION	BAS









DESRIPTION: BANNERSAVER SMALL
MATERIAL: CAST ALUMINUM

INCH DRAWING
DO NOT SCALE DRAWING.
C'SINK ALL TAPPED HOLES.
REMOVE ALL BURRS AND SHARP CORNERS.

TOLERANCES UNLES SPECIFIED

ONE PLACE	± 0.31
TWO PLACE	± 0.010
THREE PLACE	± 0.005
FOUR PLACE	± 0.0005
MACHINED ANGLES	± 1°

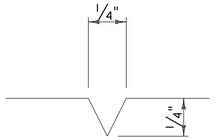
ALL STOCK AND CUT-OFF DIMENSIONS ± 0.031
UNFINISHED CASTING AND WELDMENT DIM. ± 0.062
125√ OR BETTER ON ALL MACHINED SURFACES.

Britten®

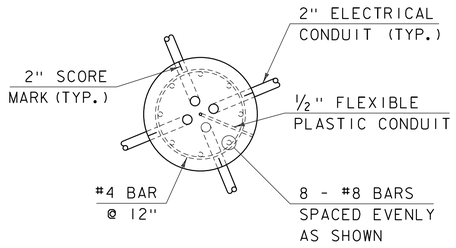
DESCRIPTION: BANNER SAVER SMALL

PROJECT NAME:

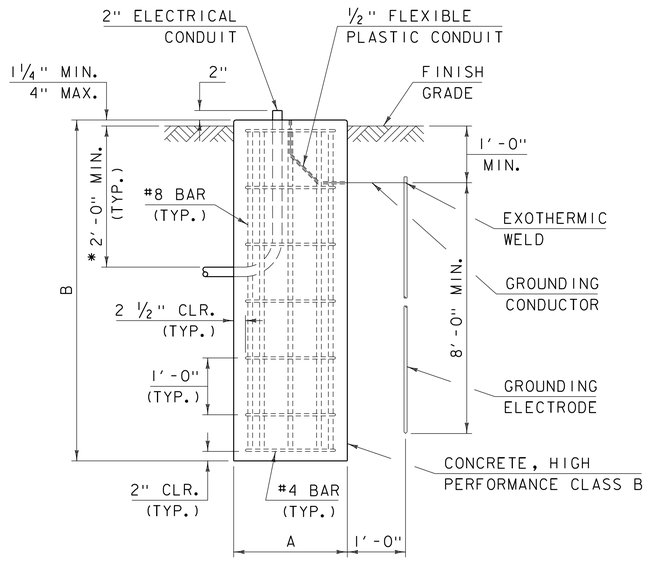
DESIGN BY		CHECKED BY		TOTAL SHEETS
DRAWN BY	BAS	DATE	01/10/06	
SCALE	1 : 1			1
SHEET No.	1	BannerSaverSm		



SCORE MARK DETAIL



PLAN



ELEVATION

*3'-0" WHEN UNDER ROADWAY

MOUNTING HEIGHT (H) (FT)	BRACKET ARM LENGTH (L) (FT)	A (FT)	B (FT)
H < 20	ANY LENGTH	2	6
20 ≤ H < 40	L < 8	2	6
20 ≤ H < 40	8 ≤ L < 10	2.5	6
20 ≤ H < 40	10 ≤ L ≤ 16	2.5	8

GENERAL NOTES:

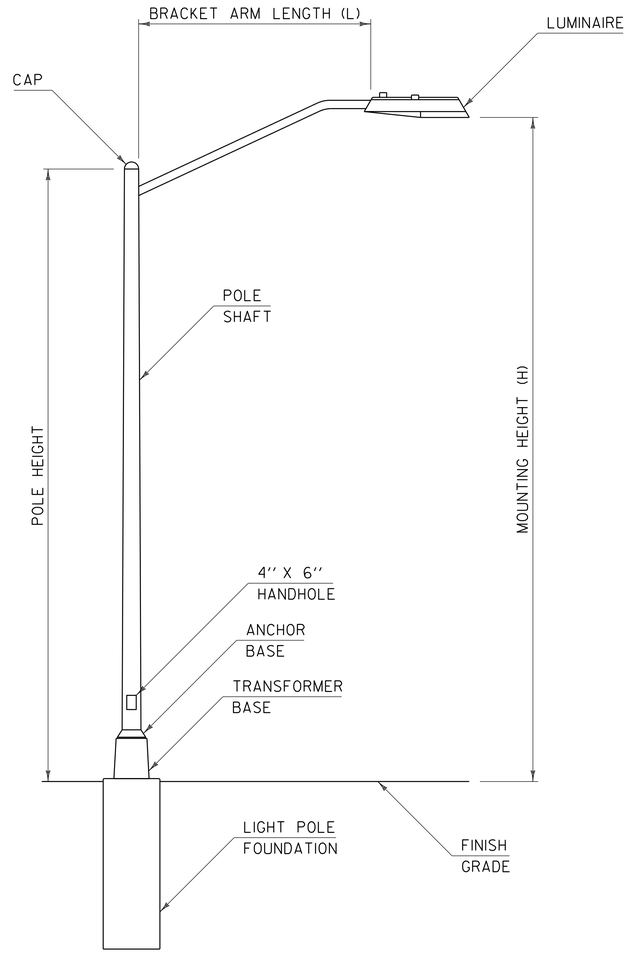
1. CONCRETE SHALL MEET THE REQUIREMENTS OF CONCRETE, HIGH PERFORMANCE CLASS B AS SPECIFIED IN SECTION 501 OF THE CURRENT VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 1/2 INCH RADIUS EDGING TOOL.
2. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF REINFORCING STEEL, LEVEL I AS SPECIFIED IN SECTION 507 OF THE CURRENT VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS.
3. ANCHOR BOLTS, WASHERS, NUTS AND OTHER HARDWARE SHALL BE IN ACCORDANCE WITH SUBSECTION 714.09, OF THE CURRENT VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND OF THE SIZE, TYPE AND PLACEMENT AS SPECIFIED BY THE TRANSFORMER BASE MANUFACTURER.
4. SCORE MARKS SHALL BE ON THE TOP OF THE LIGHT POLE FOUNDATION DIRECTLY ABOVE ALL CONDUIT LOCATIONS TO SHOW LOCATION OF CONDUIT(S).
5. EACH LIGHT POLE FOUNDATION SHALL BE LIMITED TO A MAXIMUM OF FOUR ELECTRICAL CONDUITS. ELECTRICAL CONDUITS SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE LOCATION OF THE ANCHOR BOLTS.
6. THE MINIMUM SWEEP RADIUS FOR ELECTRICAL CONDUIT SHALL BE 12 INCHES.
7. WHEN LOCATED BEHIND GUARDRAIL, LIGHT POLE FOUNDATIONS SHALL BE INSTALLED OUTSIDE OF THE APPLICABLE DEFLECTION DISTANCE AS IDENTIFIED BY THE CURRENT EDITION OF THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "ROADSIDE DESIGN GUIDE", AND ITS LATEST REVISIONS.
8. DETAILS ARE FOR CAST IN PLACE LIGHT POLE FOUNDATIONS ONLY. CONSTRUCTION DRAWINGS SHALL BE SUPPLIED FOR PRE-CAST LIGHT POLE FOUNDATIONS.
9. WHERE ALUMINUM COMES INTO CONTACT WITH CONCRETE, THE CONTACTING SURFACES SHALL BE SEPARATED WITH A PREFORMED FABRIC BEARING PAD IN ACCORDANCE WITH SUBSECTION 731.01 OF THE VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER STREET LIGHTING ITEMS.

REV.	DATE	DESCRIPTION
0	DEC. 21, 2015	ORIGINAL APPROVAL
1	JUL. 25, 2016	UPDATED REBAR COVER FOR HPC, ADDED NOTE 9 REVISED NOTES 1, 2, 3, 7, UPDATED CHART
OTHER STANDARDS REQUIRED: NONE		
VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION		

LIGHT POLE FOUNDATION DETAILS

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

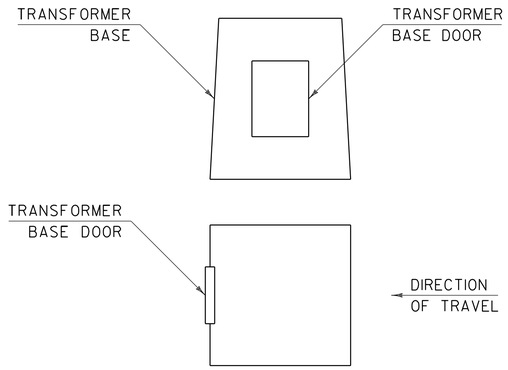
STANDARD
T-133



LIGHT POLE DETAIL

NOTE:

1. STREET LIGHTING SHALL BE INSTALLED SO THAT THE TRANSFORMER BASE IS SIX FEET FROM EDGE OF PAVEMENT OR FACE OF CURB (WHICHEVER APPLIES), UNLESS OTHERWISE NOTED IN THE PLANS.
2. MOUNTING HEIGHT (H) SHALL BE TO THE SURFACE BEING ILLUMINATED DIRECTLY BELOW THE LUMINAIRE.



TRANSFORMER BASE DETAIL

#SLX–ZZZW–LED

LIGHT POLE TAG DETAIL

NOTES:

1. A LIGHT POLE TAG SHALL BE ATTACHED TO ALL LIGHT POLES, EXCEPT ORNAMENTAL POLES.
2. THE LIGHT POLE TAG SHALL BE NATURAL ALUMINUM OR PAINTED FLAT BLACK. WHEN PAINTED, ALL PUNCHING, STAMPING, ENGRAVING AND PHOTO-ETCHING SHALL BE DONE PRIOR TO PAINTING.
3 THE LIGHT POLE TAG SHALL BE WELDED, RIVETED OR BOLTED (WITH VANDAL PROOF BOLTS IF BOLTED) TO THE LIGHT POLE.
4 THE BASE MATERIAL FOR LIGHT POLE TAG SHALL BE ALUMINUM WITH A MINIMUM THICKNESS OF 0.10 INCHES.
5 THE CHARACTERS ON THE LIGHT POLE TAG SHALL BE PUNCHED, STAMPED, ENGRAVED OR PHOTO-ETCHED. STAMPING OR ENGRAVING SHALL PENETRATE A MINIMUM OF HALF THE THICKNESS OF THE BASE MATERIAL.
6. THE LIGHT POLE TAG SHALL BE ATTACHED TO THE POLE DIRECTLY ABOVE THE HANDHOLE, WITH THE TOP OF THE LIGHT POLE TAG FOUR FEET ABOVE THE TOP OF THE TRANSFORMER BASE.
7. LIGHT POLE TAG CHARACTER ''X'' SHALL BE THE DESIGNATED STREET LIGHT NUMBER (SL) AS SHOWN ON THE LIGHTING PLANS.
8. LIGHT POLE TAG CHARACTER ''ZZZ'' SHALL BE THE WATTAGE OF THE LUMINAIRE.

GENERAL NOTES:

1. TRANSFORMER BASES SHALL INCLUDE THE TRANSFORMER BASE AND ALL HARDWARE REQUIRED TO MOUNT THE LIGHT POLE TO THE TRANSFORMER BASE.
2. LIGHT POLE SHALL INCLUDE POLE SHAFT, ANCHOR BASE, CAP AND LIGHT POLE TAG.
3. LIGHT POLES SHALL BE TAPERED AND SHALL BE CONSTRUCTED OF ALUMINUM.
4. ALL LIGHT POLES SHALL BE MOUNTED ON COMPATIBLE TRANSFORMER BASES.
5. TRANSFORMER BASES SHALL NOT OVERHANG THE LIGHT POLE FOUNDATION.
6. TRANSFORMER BASES AND ALL HARDWARE CONTAINED WITHIN THE TRANSFORMER BASES SHALL BE BREAKAWAY AND CONFORM TO THE REQUIREMENTS OF THE CURRENT ''AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS'' (AASHTO) ''STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS'', AND ITS LATEST REVISIONS.
7. LUMINAIRES SHALL BE AS SPECIFIED IN THE PLANS.
8. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE CODES. THIS MATERIAL AND WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA AND VTRANS SIGNAL TECHNICIANS.
9. ALL WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ''AMERICAN WELDING SOCIETY'' (AWS) D1.2 ''STRUCTURAL WELDING CODE - ALUMINUM''.
10. POLES FOR ORNAMENTAL LIGHTING SHALL BE AS SPECIFIED IN THE PLANS.

REV.	DATE	DESCRIPTION
0	DEC. 21, 2015	ORIGINAL APPROVAL
1	MAR. 10, 2017	DELETED REQUIREMENT FOR BRACKET ARMS TO BE SINGLE MEMBER TYPE.

OTHER STANDARDS REQUIRED: T-133

VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION

LIGHT POLE & TRANSFORMER BASE DETAILS

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-134